

A MIXED-METHODS APPROACH DISCOVERING THE IMPACT ON READING  
FLUENCY OF STRUGGLING KINDERGARTEN STUDENTS WHEN RECEIVING A  
DOUBLE DOSE OF LITERACY INSTRUCTION

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AUTHORIZATION TO SUBMIT DISSERTATION

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## DEDICATION

This dissertation is dedicated to my late grandmother, Iona Raney, a teacher in every meaning of the word, who helped me believe I was capable of great things.

## ABSTRACT

Students struggling in tier-one and tier-two kindergarten literacy instruction are likely to continue to have difficulty reading over the next several years. Schools must find creative ways to keep them motivated and learning in order to build fluency and eventually comprehension skills. This nonequivalent control group, pre-test–post-test, mixed-methods research focuses on a particular kindergarten intervention strategy: double dosing of research-based curriculum identified at-risk students. Providing struggling students opportunities to interact with the curriculum multiple times yields positive results with respect to their ability to read and confidence in doing so. Final participants included 106 kindergarten students, their parents, and instructors. Gain scores on benchmarked standardized assessments and quantitative and qualitative results from surveys of parents and instructors were examined using *t*-tests to determine whether the double-dose of kindergarten instruction was effective, and Cohen's *d* to consider how much impact the intervention had on that effectiveness. Significant results were found in support of the intervention for the entire sample, and several subpopulations with respect to growth in letter-name and letter-sound fluency. Parents of students enrolled in the experimental group indicated significant perceptions of growth in their students' confidence, enjoyment in reading, and abilities.

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## Chapter I

### Introduction

Developing mastery of any task is time consuming. Becoming truly great at that task can often appear an insurmountable request. Gladwell's (2008) work in the book *Outliers: The Story of Success* puts a numerical value on the quest for true greatness: 10,000 hours. The notion that anyone can be truly great at anything with that amount of time practicing is represented in many cases. Michael Jordan and Tiger Woods, as cited by Gladwell, can trace the amount of time practicing their respective sports to 10,000 hours before becoming the best in their arena. Steve Jobs of Apple Computers and Bill Gates of Microsoft could recount about 10,000 hours of computer programming before truly emerging as arguably the two most influential technology innovators of our time. Not only did Gladwell suggest 10,000 hours to be the point of greatness, but he correlated decreasing amounts of time with decreasing admiration in their respective arenas. Nine thousand five hundred hours may put athletes at the all-star level. Nine thousand hours earns the athlete a spot on the starting squad. Eight thousand five hundred hours may put him or her on the traveling team, and so on.

Assuming research-based instruction is delivered to a student, the same criteria for greatness may be applied to students' abilities to build reading fluency and comprehension. Considering fluently reading adults at 28 years of age would require less than an hour per day of time reading to reach 10,000 hours, it could be argued that a fluent reader is as good at reading as Tiger Woods is at golf. Though he struggles with it on occasion, particularly when the course is more difficult, the base ability to play remains firmly engrained after the 10,000 hours of practice, and maintains with continued practice. Trotter (1986) took the idea of increased time on task and broke the phases of learning toward mastery into four distinct stages: novice, advanced

beginner, competence, and expertise. The obvious goal for literacy instruction is to help students reach the level of expertise, wherein Trotter suggested the reader is capable of applying initial learning and experience to understand the root cause of a new circumstance. This is similar to Bloom's (1956) assertion that synthesis of material is the highest level of understanding in which readers would be capable of using prior knowledge to predict and organize information in new reading to better understand it.

Students equipped with literacy skills are likely to progress through the kindergarten year with success and be better prepared for first grade than those who struggle (Arnold, 2009; Connolly & Olson, 2012; Cooper, Allen, Patall, & Dent, 2010; Hough & Bryde, 1996; National Association for the Education of Young Children, 2009; New York City Early Childhood Professional Development Institute, 2012). Identification of struggling learners and placement in tier-two and tier-three intervention are key elements of instructional leadership (Danielson, 2007). Identification and intervention at an early age can help students become more successful than they would otherwise be. Given the time constraints of the typical half-day kindergarten program, a three-tiered intervention program can be difficult to attain (Hough & Bryde, 1996; Pan, 2011). Providing instructors more time to work with these students allows for opportunities to intervene at this early stage of the students' educational careers (Beiswinger, 2009; Berliner, 1990; Connolly & Olson; Cooper et al., 2010; McMurrer, 2012; Oliver, 2007).

Currently only 11 states require full-day, or extended, kindergarten to be offered as part of a free public education system (Workman, 2013). As the Common Core State Standards are implemented, opportunities for students to develop literacy at an early age are crucial. Students who develop their fluency and can focus on the comprehension and critical analysis of the text will be significantly more prepared to meet the challenges of the new standards.

## Statement of the Problem

What is the impact of a second dose of direct instruction to kindergarten students who are likely to struggle with literacy during their primary years? A gap exists in the professional literature as little research has been conducted to discuss benefits of such a tier-three intervention. Extended kindergarten is a widely researched topic in the field of primary education, with mixed results (Carroll & Spearritt, 1967; Chapman, 2009; Cooper et al., 2010; Elicker & Mathur, 1997; Hendler & Nakelski, 2008; Hough & Bryde, 1996; Li-Grining, Maldonado-Carreno, & Votruba-Drzal, 2008; Saam, 2005; Zakulak, Straw, & Smith, 2009; Zelenka, 2010). Elicker and Mathur (1997) indicated the vast majority of extended kindergarten programs include only nine minutes of individualized instruction on average. That individualized time is very instructor-directed and does not often include any pre-teaching or re-teaching of concepts. Rather, according to Elicker and Mathur, instructors tend to target deficient skills in students using methods other than those prescribed in intervention guides for the curricula they employ. Hough and Bryde (1996) found that while students in an extended kindergarten program do employ more small-group activities, they also tend toward more instructor-directed learning with only slightly more targeted intervention than their half-day peers. Saam (2005) found similar results, indicating the activities taking place in the extended kindergarten classrooms are varied and tend to center on enrichment activities, providing students opportunities to learn and use academic language in new contexts.

The purpose of this study is to examine elements of an intervention provided in kindergarten classrooms and attempt to determine whether it provides the return on investment the district believes it does for its students. Students in the control group, enrolled in an extended kindergarten option using federal Title I funding, participated in a double dose of literacy

instruction using a research-based scripted curriculum. Students in the experimental group were simply enrolled in the traditional half-day program with intervention occurring only as time allowed in the three-hour instructional day.

## **Background**

Students enrolled in school districts in rural southwestern Idaho do not enjoy many of the same opportunities as students in larger, more urban Idaho districts. Statistics indicate a high enrollment in free and reduced lunch programs relative to more populous districts, as well as high needs with respect to learning English as a second language (Idaho State Department of Education, 2013). Early intervention for students at risk of failure, particularly those who do not have a base in the English language, can be crucial to their long-term development in literacy (Calderon, Slavin, & Sanchez, 2011; Hattie, 2009; Pan, 2011; Phillips & Norris, 1990). Determining what works best for these learners can certainly be argued as a worthwhile endeavor.

## **Pilot Study**

During the 2011–2012 school year, the eight lowest-performing kindergarten students in one of the schools used for the purpose of this research were identified and placed in an extended kindergarten intervention designed to provide a second dose of reading instruction. They were compared to the next eight lowest-performing students in the kindergarten cohort. Results were positive, as students receiving the intervention demonstrated a greater rate of growth of letter-name fluency and letter-sound fluency than the control group, as well as the kindergarten class as a whole.

Kindergarten instructors and parents of students in the experimental group reported increases in the students' self-efficacy. Instructors indicated increased participation in class, and



parents indicated increased desire to attend school. Results on 2012 fall benchmarking tests were equally positive as the students in the experimental group (then in first grade) lost less of their fluency over the summer than did the control group and the grade-level cohort. In the middle of their second-grade year, at the time of writing of this dissertation, seven of the eight students in the experimental group had maintained grade-level status. The eighth student underwent testing and qualified for special education services due to cognitive impairment (K. Jeffrey, personal communication, November 6, 2013).

Procedures from the pilot provided insight into possible methodology for scaling it up to examine greater numbers of students. Outcomes from the pilot provided encouragement for consideration of expanding the scope to a full research project.

### **Research Questions**

Creswell (2012) indicated research questions can help the researcher narrow the focus of the broader goal to specific aspects of it. He suggested more than one research question to be appropriate in most cases in order to explore many facets of the subject in question. With that in mind, this dissertation study focused on two primary questions:

1. What is the benefit of a second dose of literacy instruction on students likely to struggle during the kindergarten year?
2. How much of the hypothesized benefit is gained from enrollment in a second dose of literacy instruction?

### **Theoretical Framework**

LaBerge and Samuels (1974) contended that in order to build automaticity, one must begin with mastery development of the most basic of components. Through mastery of those components, one may move on to the next level of skills. This bottom-up stage model, implied

LaBerge and Samuels, applies to the development of automaticity for any complex skill, which could easily be applied to students' development of fluency. Beginning with letter-name and letter-sound fluency ultimately sets the foundation for comprehension. The work of LaBerge and Samuels served as the theoretical framework for this dissertation, providing clarity of best practices regarding literacy, and methodology for conduction of research pertaining to its development.

### **Hypotheses**

*H<sub>0</sub>*: There will be no statistically significant difference demonstrated in students' growth in letter-name and letter-sound fluency from fall to winter between students who participated in the extended kindergarten intervention and those who did not participate.

*H<sub>1</sub>*: There will be a statistically significant difference in students' growth in letter-name and letter-sound fluency from fall to winter between students who participated in the extended kindergarten intervention and those who did not participate.

### **Description of Terms**

Educators regularly employ countless terms to identify aspects of their field. Creswell and Garrett (2008) suggested outlining operational definitions of terms to clarify the intent of the researcher in their use. Below is the list of terms employed in this dissertation in need of clarification to standardize use.

**At-risk students.** At-risk students were those identified through district or state-administered standardized evaluations to have a high likelihood of academic struggles in literacy during their kindergarten year.

**Benchmark.** Students identified as "benchmark" performed at the grade- and age-appropriate levels as indicated by the state evaluation.

**Double dose.** Students who received a second opportunity to work through the kindergarten curriculum received a “double dose” of instruction. This was an addition to the standard, one-time opportunity of students not identified for tier-three intervention.

**Extended kindergarten.** Students enrolled in extended-day kindergarten attended school full time, as compared to their peers who attended only half of the time when compared to students in grades 1 through 5.

**Idaho Reading Indicator (IRI).** The IRI, administered three times per school year, was intended to identify students likely to be “at-risk of failure with skills that are prerequisite for being successful readers throughout life” (Idaho State Department of Education, 2010).

**Instructor.** The term “instructor” included the certified instructor or classified instructional staff designated to work with students in an otherwise unsupervised environment.

**Intensive.** Students identified as “intensive” performed significantly below grade- and age-appropriate levels as indicated by the state evaluation.

**Strategic.** Students identified as “strategic” performed slightly below grade- and age-appropriate levels as indicated by the state evaluation.

**Tier-one.** Students participating in only tier-one instruction received a standard amount of instruction as prescribed by the school districts. Tier-one instruction was generalized to the needs of the whole class. This was core literacy instruction, intended to meet the needs of 80% of the students.

**Tier-two.** Students participating in tier-two instruction received intervention in literacy in addition to the core literacy instruction provided in tier one. Tier-two instruction was generalized to the needs of the small intervention group of about six students. In partnership with tier-one

instruction, tier-two instruction was designed to meet the needs of 95% of the students in any regular classroom.

**Tier-three.** Students participating in tier-three instruction received services beyond the first two tiers. Tier-three instruction was highly individualized to the needs of the student. Tier-three instruction was designed to meet the needs of the 5% of students not adequately served in tier one or tier two.

### **Significance of the Study**

Most parents who send their children to school want those children to grow up and become productive members of society. Providing students with as many tools as possible is certainly a valiant goal. This study has significance for a number of reasons, but the above statements point to the primary one: Educators want to do the best they can to meet the needs of students and give them a life that brings happiness and success through knowledge. Additionally, however, this study was an attempt to marry two concepts that were much researched but rarely paired: increased instructional time on task and extended kindergarten. The former is rarely argued to be anything but positive for student achievement (Beiswinger, 2009; Berliner, 1990; Fielding, Kerr, & Rosier, 1998). The latter is debated in research with compelling arguments for and against the effectiveness of extended-day kindergarten over time (Carroll & Spearritt, 1967; Chapman, 2009; Cooper et al., 2010; Elicker & Mathur, 1997; Hendler & Nakelski, 2008; Hough & Bryde, 1996; Li-Grining et al., 2008; Saam, 2005; Zakulak et al., 2009; Zelenka, 2010). The effects of double dosing reading instruction for at-risk kindergarten students in an extended program were not discussed in the literature reviewed for this research. Services provided in an extended-day kindergarten program tended to vary a great deal, ranging from enrichment activities to “rest videos” designed to provide students a time to relax and enjoy a stress-free time

in class (Elicker & Mathur, 1997). Hattie (2009) suggested student learning should be accelerated to achieve maximum impact. He argued for immersion of students in opportunities to grow and insisted they will demonstrate that growth the vast majority of the time. This dissertation reviewed the double dosing of struggling kindergarten students in literacy instruction and examined the effects of that intervention.

### **Overview of Research Methods**

This research was conducted using a nonequivalent control group, pre-test–post-test design. The methods were mixed with a heavy emphasis on quantitative analysis. Letters of support were acquired from the districts from which experimental and control groups were drawn (see Appendices A and B). The IRI was analyzed using a *t*-test,  $\alpha = .05$ , and Cohen's *d* analysis. Parental survey (see Appendix C) results were analyzed using a *t*-test and Cohen's *d*, and instructor survey (see Appendix D) results were analyzed with a Mann Whitney *U*. Qualitative results from surveys were analyzed for trends in responses, and information from those responses was used to support quantitative outcomes.

Informed consent was acquired from legal guardians (see Appendix E). Legal guardians were provided the Idaho State Department of Education brochure, Idaho Reading Indicator (IRI) Parent Information (see Appendix F). Instructors were provided the Idaho State Department of Education brochure, Idaho Reading Indicator Teacher Brochure (see Appendix G). Participants, drawn from two school districts in rural, southwestern Idaho, included 5-year-old (on or before September 1, 2013) students enrolled in kindergarten for the first time. The districts were similar in many ways, including comparable free and reduced lunch status, ethnicities, and size. Both districts served students from the same town, with one district extending to the neighboring town, as well as some unincorporated county property.

All kindergarten students in the 12 participating schools were screened using the fall version of the IRI. Those identified as at risk of failure and placed in an extended kindergarten program comprised the population of the experimental group. Those identified as at risk of failure and not placed in an extended kindergarten program comprised the population of the control group.

**Research question #1.** What is the benefit of a second dose of literacy instruction on students likely to struggle during the kindergarten year? Students' IRI scores were analyzed using a *t*-test ( $\alpha = .05$ ) to determine whether the intervention made a significant difference in their abilities to identify letter-names and letter-sounds during a one-minute timing. Effect sizes were analyzed through use of Cohen's *d*. Instructors' and parents' perceptions of students' abilities were analyzed using a Likert-scale survey. The parent survey was administered in the fall and winter, while the instructor survey was administered just before the winter IRI in January. Results were analyzed through use of a *t*-test, significant results receiving further attention through a Cohen's *d*. Finally, open-ended questions provided instructors and parents the opportunity to offer further insight into their perceptions of students' developing literacy skills. Results of qualitative questions offered by parents and instructors were also employed in analysis of the intervention.

**Research question #2.** How much of the hypothesized benefit is gained from enrollment in a second dose of literacy instruction? Results of the outcomes from the first research question were analyzed using Cohen's *d*, to determine how much of the difference could be attributed to the intervention of extended kindergarten. Results of qualitative questions offered by parents and instructors were also employed in analysis of the intervention.

## **Chapter II**

### **Review of Literature**

#### **Introduction**

Several factors must be considered before delving into a topic as complex as primary instruction and intervention. Multiple avenues were explored prior to implementation of the intervention. These included best practice for instruction specific to primary grades' literacy development, as well as research-based, scripted curricula as an effective tool for instructional delivery. Also explored were models for extended kindergarten, primarily including those tested for effectiveness, as well as the specific instructional delivery methods that occurred in those models. Finally, increased instructional time and its effects on student achievement were considered, including the offering of summer school in order to provide students more opportunities to be engaged in academics.

One overarching theme is addressed in Pan's (2011) dissertation. He explored whether there is value in putting a great deal of effort into early childhood education. His examination of the longitudinal *Study of Early Child Care and Youth Development* takes a look at several aspects of the 1,000 families involved in the study. Pan concluded there are immediate and positive impacts on students who are provided high-quality literacy instruction early in life. There is not a direct relationship between students receiving this instruction and those who do not, but he found a strong correlation. Campbell and Ramey (1995) found similar results when regarding African-American students in middle adolescence who had received early intervention during the primary grades. Following the randomly assigned preschool treatment group for the next 10 years, the experimental group scored significantly higher than the control group on tests administered to determine reading levels. This is supported by the New York City Early

Childhood Professional Development Institute and the National Association for the Education of Young Children (NYCECPDI) (2012), which suggested high-quality, early childhood education sharpens students' academic skills. The NYCECPDI claims this intervention places students at lower risk for identification for special education services later in their academic careers and stems the dropout rate of participants. Additionally, according to the NYCECPDI (2012), providing high-quality, early childhood education encourages positive behavior, including curiosity and willingness to take appropriate risks. It also provides such long-term benefits as increased earning potential and lower incidence of teen pregnancy and incarceration. While this positive impact may not completely overcome the factors putting many students at risk of failure, high-quality primary literacy instruction is one element that certainly must be in place for students to have the best opportunity to do so (Arnold, 2009; Cooper et al., 2010; National Association for the Education of Young Children, 2009; New York City Early Childhood Professional Development Institute, 2012; Pan, 2011; Phillips & Norris, 1990; Yoshikawa, 1995).

The above results are supported by the outcomes of the Perry Preschool Project. This project is regarded in the literature as providing high-quality, early childhood education, particularly with respect to literacy (Wilson, 2000; Yoshikawa, 1995). Both Wilson and Yoshikawa followed the Perry Preschool Project's longitudinal outcomes to find positive results for those students receiving high-quality early instruction, particularly when compared to similar peers not receiving such instruction. Included are positive effects with respect to social responsibility, scholastic achievement, and socioeconomic standing. These positive effects connect with lower rates of delinquency, aggressive or dangerous behavior, incidence of teen pregnancy, substance abuse, and less reliance on public assistance later in life. Data indicated



31% of those involved in the Perry Preschool Project were arrested later in life, compared to 51% of those from the same population who were not enrolled. The positive effects included higher grade-point average earned in high school, greater high school graduation rates, monthly earnings greatly exceeding their control group peers, and significantly more individuals who owned their own home 20 years later. Wilson reported a cost–benefit analysis of the Perry Preschool Project indicating a savings of “more than seven times the initial investment per child” (p. 4).

While there are countless factors also contributing to students’ short- and long-term success in academia and life, providing high-quality literacy instruction is one of the key predictors of success that can overcome many factors putting students at-risk (Campbell & Ramey, 1995; National Association for the Education of Young Children, 2009; New York City Early Childhood Professional Development Institute, 2012; Pan, 2011; Wilson, 2000; Yoshikawa, 1995). Finding best practice for early childhood literacy instruction and implementing it was certainly supported in the reviewed research to be worthy of educators’ time. It appeared not doing so could be detrimental to the student and cost exponentially more to society through public assistance or even incarceration (National Association for the Education of Young Children, 2009; New York City Early Childhood Professional Development Institute, 2012; Pan, 2011).

### **Theoretical Framework: LaBerge and Samuels’ Automaticity**

Human beings are not capable of consciously completing any more than one task at any point (LaBerge & Samuels, 1974). One must, therefore, become automatic at any sub-tasks necessary that must be completed simultaneously. The goal in reading is comprehension of the material. The emerging reader must begin to develop word fluency prior to comprehension

abilities. In order to develop word fluency, the reader must seek mastery of the necessary sub-skills, such as phoneme segmentation, ability to decode digraphs, trigraphs, and even letter-name and letter-sound recognition (LaBerge & Samuels, 1974; Samuels & Flor, 1997). LaBerge and Samuels suggested development of letter-name recognition is a step-by-step process. Fluent readers are capable of selecting relevant features between letters to distinguish them, automatically, from each other. When emerging readers are able to automatically distinguish between two dissimilar letters, they grasp the simplest of concepts in their quest to achieve comprehension. As they become automatic in one area, budding readers move on to master and become automatic in the next, and so on. Eventually, when they are able to read fluently and develop comprehension by tying meaning to the words, the decoding of words becomes less conscious and more subconscious (LaBerge & Samuels, 1974; Samuels & Flor, 1997). LaBerge and Samuels suggested that once students' attention is primarily on the meaning of the word, rather than the sounds the letters make to create it, they are prepared to comprehend that word.

Kropp (2014) helped quantify the necessity for students to develop automaticity, even before entering their kindergarten year. She pointed to Adams' (1990) suggestion that students who have a vocabulary of at least 100,000 words are most likely to be strong reading students and critical thinkers. Kropp's suggested that 1,000 books read to children prior to enrollment in kindergarten places students properly on that path. She suggests students whose parents read at least three stories per day to them will begin to develop automaticity with respect to both symbol identification and vocabulary recognition as well as the cultivation of a love for learning and reading. Kropp and Adams both pointed to increased opportunities in time and repetition to develop automaticity in the pre-kindergarten and kindergarten years as strategies to place students on the right path to becoming literate, deep-thinking students. The abilities of students

to decode and understand written text accelerates their reading ability, catalyzing their future academic success.

### **Best Practices for Literacy Instruction in the Primary Grades**

A determination of “best” practice cannot easily be agreed upon, but several common strands were found in the practices of instructors who get the best results from their students. Among them, the development of students’ abilities to decode and build phonological awareness toward fluency tended to be the most prevalent (Donaldson, 2011; Fuchs & Fuchs, 2005; Slavin, Lake, Chambers, Cheung, & Davis, 2009). Primary instructors who focus on decoding and fluency through practice and explicit instruction tended to produce the best results. Less prevalent in the research of primary education, but equally important as the student reaches the intermediate grades, was explicit instruction with respect to comprehension strategies (Patton, Crosby, Houchins & Jolivette, 2010). Patton, Crosby, Houchins, and Jolivette suggested students who received explicit instruction with respect to comprehension strategies were more likely to develop excellent literacy skills in their elementary school years than those provided less focused instruction. Gordon (2014) examined high performing schools in China, finding a dedication to increased reading time as a connection to increased achievement. Students at the identified schools became involved in opportunities to work through curriculum more thoroughly, as well as practicing reading in dedicated, unstructured time. According to Gordon, schools in China were all expected to use strategies such as making predictions, using contextual and visual cues, summarizing, and drawing conclusions. She suggested that while these strategies are used in pockets of schools in the United States, they were not as prolific as schools in China, which incorporated them as elements of their schools’ cultures.

Researchers did not suggest, however, that comprehension strategies should be employed for students in the primary grades (Fuchs, Fuchs, Thompson, Al Otaiba, Yen, & Yang, 2001; Patton Crosby, Houchins, & Jolivette, 2010; U.S. Department of Education, 2011). The teaching of comprehension strategies yields some short-term rewards, but students in the primary grades do not retain the ability to comprehend until they are reading fluently and building prosody (Fuchs et al., 2001; Patton et al., 2010). As students' brains develop through about age 8, they are configured to begin to learn how to comprehend the world around them. Symbolic figures such as letters and words do not carry meaning like their utterances, which equate aurally with greater ease beginning before students' first birthdays. The pairing of the symbols (letters) and the grouping of symbols (words) to meaning in context is established following development of fluency and in varying rates by each student (Fuchs & Fuchs, 2005). Rathbun (2010) supported this focus on fluency with a pared down element of comprehension skills. Her secondary analysis of the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K) indicated longer-lasting benefits in classrooms spending less time on comprehension and more time on development of oral reading fluency through activities designed to increase discrete literacy skills such as letter-sound fluency and phoneme segmentation. Primary instructors focusing simply on fluency will reap the greatest rewards when they develop it to its potential and leave the comprehension strategies for later in students' schooling (Fuchs et al., 2001; Patton et al., 2010; Rathbun, 2010).

Fuchs and Fuchs (2005) argued the development of phonological awareness to be a foundational practice that must be in place in order to move on to higher order literary concepts. Stahl and Murray (1994) defined this necessary skill as students' abilities to separate onsets from rhymes. They contended that the awareness of onsets and rhymes "is necessary both for word

reading and for more complex levels of phonemic awareness” (p. 223). Fuchs and Fuchs, as well as Stahl and Murray, stated that the opportunity to build phonological awareness over time becomes central to building rate of fluency. Fuchs et al. (2001) concurred, noting the combination of phonological awareness instruction with explicit fluency instruction and time to practice it yields the greatest results. They examined the effects of decoding instruction with and without phonological awareness training. Using pre-tests and post-tests of phonological awareness for 404 students, they concluded the pairing of decoding instruction with phonological awareness “strengthen(s) beginning reading performance better than does phonological awareness alone” (p. 38). The researchers were hesitant to link phonological awareness to comprehension, as the study focused purely on the rate of fluency. This supported their previous work suggesting metacognitive strategies in the primary grades are underdeveloped due to a still-forming brain. Simply focusing on the rate of fluency, phonological awareness provides the most impact for any student, struggling or not. Fuchs et al. suggested students who are provided instruction and practice with respect to phonological awareness are more likely to develop a greater rate of fluency quicker and be able to move on to higher order skills, such as comprehension, earlier and with greater ease.

Researchers have suggested students who build a greater rate of fluency early in their endeavors to learn to read, even in nonsense words, are better prepared to comprehend when given the task later in their schooling (Fuchs & Fuchs, 2005; Grabe, 2010; Patton et al., 2010; Stahl & Murray, 1994). The automaticity that comes with letter-name, letter-sound and word fluency frees the brain to focus on the meaning of the word rather than the decoding of it (Fuchs & Fuchs, 2005). Fuchs and Fuchs pointed to increased opportunities to utter the sounds and words as correlated to greater rates of fluency. This was particularly true when working with

same grade-level peers as students built both their social communication and academic language base. Grabe (2010) went on to assert this to be true particularly in students whose primary language is not English and those with cognitive impairment. He found this especially accurate when students work toward word recognition through sight words as well as phonetic development. As students become less encumbered by words that do not follow the patterns of phonetics in the English language because they recognize them as sight words, the words requiring decoding skills can be focused on with greater attention.

The link between this fluency and later abilities to comprehend is strong. Calderon, Slavin and Sanchez (2011) noted students who were provided high-quality fluency instruction tended to develop comprehension faster, particularly when fluency instruction accompanies explicit vocabulary instruction. Traxler (1932) took an early look at the relationship between fluency and later abilities to comprehend, citing evidence for a focus on rate of fluency as a catalyst for comprehension skills later in the students' academic careers. While a particularly strong relationship between fluency and comprehension is found in all students, the advantages for students whose primary language is not English are especially apparent (Calderon et al., 2011; Therrien, 2004; Traxler, 1932). Such students build confidence and begin to recognize and adapt to the differences between their primary language and English. Pairing speed practice with explicit phonetic instruction yields the most dramatic results with such learners. Calderon et al. suggested the implications are generalizable to most students in the primary grades, assuming the students do not enter well above grade level.

Instructors do not work to build rate of fluency simply to make students read faster. The goal of literacy instruction is comprehension of the material with fluency as the catalyst (Grabe, 2010; Phillips & Norris, 1990). Patton et al. (2010) worked to determine what the comparative

effects of fluency intervention would be with and without an intervention targeting comprehension strategies. They were able to support their suspicion that focus on comprehension is less important in the primary grades as fluency is built. These researchers conducted a quasi-experimental study using 86 students in the primary grades. Half of the randomly determined students received an intervention focused only on phonics. The other half, the experimental group, received the intervention in both phonics and in comprehension. Baseline tests were administered to ascertain fluency and comprehension abilities. The interventions were then applied for a period and post-tests were subsequently administered. It was determined that the inclusion of a comprehension strategy intervention was counterproductive in the development of comprehension. Patton et al. (2010) found a negative relationship between teaching students explicit strategies for comprehension and their ability to comprehend. The discussion suggested the time spent on instruction with respect to comprehension might have been more effectively spent working toward fluency. The control group, however, found a slightly positive correlation, not having been administered the intervention to build comprehension.

Fuchs and Fuchs' (2005) conclusions paralleled the assertion of Patton et al. (2010), suggesting the teaching of comprehension skills in primary grades may not work for most students because those enrolled in the primary grades do not have the metacognitive abilities to consider the comprehension strategies and apply them appropriately. Any opportunities to build comprehension strategies in primary grades should be carefully designed to maximize students' time and support fluency development (Donaldson, 2011; Guthrie, Wigfield, Metsala, & Cox, 2004). Patton et al. (2010) and Fuchs and Fuchs (2005) suggested simply working toward fluency in phonics including letter-sounds and segmentation is a much more desirable tactic. They suggested working toward comprehension wastes the instructors' and students' precious

time because typical 5- and 6-year-old students' brain development has not reached a point of being capable of such tasks.

These best practices for early literacy instruction are reflected in the scripted curricula of Science Research Association's *Imagine It!* (Science Research Associates (SRA), 2007) and *Open Court Reading* (Science Research Associates (SRA), 2002). Both programs spend a great deal of time with fluency development and only incorporate comprehension strategies toward the end of first grade and beginning of second grade, according to the U.S. Department of Education's (2012) meta-analysis of schools' and instructors' results using these programs. Students enrolled in schools employing these curricula in kindergarten through most of their first-grade year work to develop letter-sound fluency and eventually blending of consonant-vowel-consonant and multisyllabic words. Included in these programs are requirements for students to also build automaticity with over 100 sight words in each grade, to fuel their rate of fluency (SRA, 2002; SRA, 2007; U.S. Department of Education, 2010). Meanwhile, those few students capable of building comprehension skills have such an opportunity based on the instructors' abilities to extend the curriculum and differentiate for them (Borman, Downing, & Schneck, 2008; Donaldson, 2011; Science Research Associates, 2002; Science Research Associates, 2007).

The U.S. Department of Education (2011) found results to support Patton et al. (2010) and Fuchs and Fuchs (2005) when researching the effectiveness of a vocabulary intervention in kindergarten and monitoring its impact through first grade. Volunteer students, randomly assigned, were provided an intervention to develop vocabulary through the written word. The cited U.S. Department of Education study is a follow-up to a previous study, wherein students participated in a vocabulary intervention during their kindergarten year. The first study found the



intervention positively impacted the kindergarten students' expressive language and academic performance during that year. The focus of this more recent study, however, was how growth in expressive language and academic performance was maintained over the course of the next full year. One year following its completion, researchers from the U.S. Department of Education found no significant difference between those students who received the intervention and those who did not. Where there were individual differences immediately following completion, students either regressed to their peers' levels or the peers made gains to be on pace with the experimental group. This was true when regarding differences in gender, age within the one grade level (as those students with birthdays later in the school year are significantly younger than those born in the fall), socioeconomic status, and academic abilities, regardless of where students began. These results did point to best practice, including more focus on letter-sound fluency to develop phonemic awareness. Explicit vocabulary and comprehension strategies, while valuable when introduced with high-quality instruction, are less important during kindergarten and most of first grade.

Several strategies emerge when instructors attempt to intervene for students struggling to build literacy. While the tendency and desire to slow down and remediate for such students appear viable options, research suggests the opposite to be true. Research into best practice suggests acceleration as one of the most effective strategies for intervening with students who struggle to build a rate of fluency, assuming there is no cognitive impairment. The provision of time to work with the curriculum twice is included as one definition of acceleration (Hattie, 2009; Levin and Hopfenberg, 1991). According to Hattie, recognizing the brain's ability to catch on to difficult concepts subconsciously while accelerating through a curriculum benefits the conscious mind as students take hold of the concepts and root them in memory. As the

subconscious mind becomes more automatic in decoding endeavors, the conscious mind dedicates its resources to comprehension of the text, unencumbered by poor fluency skills. Protheroe (2007) and Levin and Hopfenberg (1991) supported the method of acceleration and appropriate extra work to help students build fluency as one strong method for preventing retention in grade. Similar to Hattie's assertion, Levin, Hopfenberg and Protheroe suggested double dosing periods for acceleration of students who struggle. According to Protheroe, this provides students opportunities to see the material twice and gain more from it the second time as a result of that first exposure. Learners are less encumbered by procedural elements of the curriculum during the second dose and can focus on the building of knowledge and fluency through explicit instruction. When the learning experiences are carefully structured and targeted to students' deficiencies, struggling students are able to catch up the majority of the time (Levin & Hopfenberg, 1991). In primary-aged students, Protheroe suggested the deficiencies are primarily due to lack of exposure to the curriculum, so extra opportunities for instruction to fill those gaps are worthwhile, with most students showing large gains in letter-sound fluency and phonemic awareness and eventually segmentation.

An important distinction to make here is the difference between Protheroe's (2007) double dipping and grade retention. While students do receive the second dose during year two of the grade in which they are retained, the effects are not the same. While some of the material is retained from year to year, the value in the second dose during the same year becomes the immediacy of the opportunity to work in the curriculum twice and only recall from short-term memory. This makes commitment to long-term memory more likely for primary students. Additionally, Roderick, Engel, and Nagoaka (2003) claimed that instructors implementing the second dose of instruction are able to tailor their instruction to their students' deficiencies from

the first dose and target those weaknesses with greater accuracy. Instructors of retained students do not enjoy a similar luxury, as the elements with which the student struggles are not as immediately available and recognizable from year to year. The primary rationale provided for not retaining students, according to Protheroe, is that if students do not acquire the skills the first time through, they are not likely to acquire them a year later. She found, however, that this is not the case when the immediacy of a few hours that double dipping can provide is utilized for developing students' understanding of the material.

### **Research-Based Scripted Curricula**

Several research-based curricula exist, but some appear more often in the research and in classrooms. Science Research Associates' *Open Court Reading* (2002) and *Imagine It!* (2007) are the curricula for this research. The majority of the research reviewed centers on these particular programs. These scripted curricula allow for less instructor determinations, when taught to fidelity, and more book-driven explicit instruction to be made on behalf of the students (Donaldson, 2011; U.S. Department of Education, 2012). Donaldson (2011) suggested, however, that instructors who are very comfortable with the content and pedagogy of their grade levels can find excellent outcomes by deviating from the requirements of the program in order to individualize instruction for struggling or accelerated learners.

The training and development of principles behind scripted curricula tended to be regarded as worthwhile investments of a district's time and resources (Borman et al., 2008; Slavin et al., 2009; U.S. Department of Education, 2012). Slavin et al. suggested this script allows for less ambiguity on the part of both the instructor and the learner. Their research into whether a group of students benefited from more instructor-created material or scripted material revealed a strong indication that the script is more effective. Slavin et al., however, determined

that an instructor who uses the curriculum and deviates from the script in order to deepen learning and understanding of the material finds great success in such a pursuit. This allows the instructor to target deficiencies through whole-group instruction for classes needing remediation with a concept or in small-group, workshop-style meetings with a particular group of students struggling with an element from the whole-group instruction. Likewise, the U.S. Department of Education's (2012) meta-analysis regarding scripted curricula focused on the effects on comprehension and rate of fluency, citing outcomes that suggested positive effects on these two components of fluency. Comprehension of written text was positively impacted by the fluency instruction during the primary grades and subsequent practice provided in scripted programs.

Donaldson's (2011) look into how scripted curricula help instructors develop student comprehension revealed that even within the script, instructors employed strategies to build comprehension at varying degrees. His work centered on schools steeped in poverty and students who were identified as at risk of failure. While he found small-group interventions to be the most valuable, the development of fluency through the scripted program fueled the comprehension later during the students' academic careers. Slavin et al. (2009) supported these claims, noting that students not involved in such a program due to a changing of schools had a harder time developing comprehension if their fluency was not already up to the same standard as those students continuously enrolled. One limitation of the scripted curricula found by Donaldson and Slavin et al. was the tendency for the instructor to ask most of the questions rather than helping students to develop skills to ask highly effective questions of themselves and others. Instructors who recognized and addressed this were considered to have been more effective in developing fluency and comprehension, supporting Donaldson's and Slavin et al.'s assertions regarding deviation from the script of the curriculum.

Reports specifically centered on *Open Court Reading* find generally positive, yet sometimes varying degrees of results in student literacy development (Arnold, 2009; Borman et al., 2008; Spencer, 2011; U.S. Department of Education, 2012). The varying degrees tended to be dependent on the instructors' and administrators' ongoing professional development and the vigor with which they undertook implementation of the scripted curricula. Those who found value in the programs and implemented them with fidelity found significant student growth and reported positive sentiments regarding the program's impact on students (Borman et al., 2008; Spencer, 2011). Even within the Reading First grant requirements, Borman, Downing and Schneck (2008) noted this deviation and cited schools with instructors and administrators that agree with *Open Court Reading's* philosophies and approaches finding greater success in fluency development. Growing student confidence could be found in qualitative elements of these studies as well, with both students and parents reporting the strong development of confidence with respect to literacy skills.

Arnold's (2009) dissertation cited positive sentiments on behalf of administrators, parents, and instructors following implementation of *Open Court Reading*. His positive results were limited, however, to schools with ongoing professional development in literacy instruction. Given that professional development, the results in educators' mind-sets were very clear; students become more confident and take more risks to build knowledge when they are familiar with the routines. The scripted nature of the program allowed for students to focus on the building of literacy through familiarity and a progression of activities designed to meet their needs. Those routines acted as vehicles to learning as opposed to impediments. Arnold suggested *Open Court Reading* aids the instructor and students by scripting routines and breaking the ambiguity that often coincides with instructor-created materials.

Quantifiable student growth through rate of fluency is positively reported in Science Research Associates' *Open Court Reading* and *Imagine It!* as well. Borman et al. (2008) found positive results with effect sizes of  $d = .16$  for reading ability,  $d = .19$  for vocabulary development, and  $d = .12$  for text comprehension. While Spencer (2011) indicated students still tended to be identified as at risk following a regiment of research-based, scripted curricula, the program had positively impacted their fluency and comprehension skills. Schools and instructors who worked hard to implement the program had better success than those who were not held to the same standard for fidelity. The schools putting in that effort, however, were more likely to be recognized as highly effective or turnaround schools, serving their population with greater success than the alternative (Spencer, 2011).

Because letter-sound fluency is a primary building block to reading fluency, Spencer (2011) delved into *Open Court Reading's* ability to support it in the primary grades. He suggested, "scaling up programs known to be effective may be a better strategy than disseminating general principles of good practice" (p. 73). In this case, having determined *Open Court Reading's* positive correlation with student achievement with respect to letter-sound fluency, Spencer found developing instructors' willingness and ability to effectively implement the scripted curriculum to have positive effects on such rates of fluency. This was found to be particularly true when compared to programs wherein instructors had freedom to make most of the determinations regarding student learning and materials. Additionally, the research found scripted programs focusing on letter-sound and consonant-vowel-consonant fluency to have a very positive impact on comprehension when implemented with fidelity.

Grabe's (2010) research into the link between comprehension and fluency, phonics skills, and phonemic awareness automaticity, as required by *Open Court Reading* and *Imagine It!*,

points to a clear connection. He noted, “word recognition practice not only leads to faster word recognition fluency but also improved reading comprehension when words trained on appear in a reading text” (p. 75). Students who build automaticity in rate of fluency are not encumbered by decoding skills. These decoding skills are necessary to develop comprehension skills and ultimately the ability to comprehend higher level information through text. Grabe suggested students who build that fluency early in their primary schooling are more likely to develop comprehension skills during the intermediate grades, so they can focus on content knowledge beginning in the upper elementary and middle school years.

Comprehension maintains its place high atop the priority list with respect to reading ability, particularly as students develop skills associated with late first grade and early second grade. With comprehension as the goal of greater automaticity and rate of fluency and the manner by which students tend to be assessed through high-stakes tests, research sets out to determine the effectiveness with respect to comprehension in the *Open Court Reading* program (U.S. Department of Education, 2012). Borman et al. (2008) found *Open Court Reading*'s most endearing quality to be the comprehension piece as supported by fluency development in the primary grades. While they found little evidence for fluency development that is statistically different than other programs, comprehension growth correlated significantly with the implementation of *Open Court Reading* with fidelity.

The “next generation” of *Open Court Reading* is entitled *Imagine It!* The What Works Clearinghouse of the U.S. Department of Education (2012) reviewed these two as one entity. One is simply an incarnation of the other. First reviewed independently, the results are not statistically significantly different, and they are, therefore, reported as one entity.

### **Increased Instructional Time**

Fielding, Kerr, and Rosier (1998), through their work with the Kennewick School District in Kennewick, Washington, set out to meet a goal of 90% reading proficiency across the district within a few short years. This aggressive goal meant a significant annual rise in proficiency scores toward 90%. Kennewick's experiment included several layers of intervention centered on the belief that increased instructional time on task would benefit students' literacy development (Fielding et al., 1998). It was a longitudinal study but involved several pre-tests and post-tests of all of the district's 12,000-plus students, as well as several benchmarking measures in between the tests.

The crux of the Kennewick School District's findings from this action research suggests instructional time on task has the most direct correlation to increased student achievement (Fielding et al., 1998). The district's model included a very prescriptive amount of instructional time on task in literacy instruction, often sacrificing such desirable activities as electives in order to reach the goal. In addition to the growing offerings of courses designed to positively impact literacy, the district's instructors also undertook professional development with emphases on purposeful responses and classroom management in efforts to maximize the contact time by increasing the amount of time spent on task. This longitudinal study also found the results to be sustained over time. Implications include simply providing students with more opportunities to learn will have lasting impacts.

The work out of the Kennewick School District, heavily influenced by Berliner's (1990) suggestions from *What's All the Fuss About Instructional Time?* and Carroll and Sperritt's (1967) *A Study of "Model for School Learning"* prescribes a certain amount of instructional time to be provided for students, increasing time based on their level of struggle. If the goal is to get them all to grade-level fluency, and the assumption is made that those who are not struggling



have spent more time reading, the Kennewick School District educators worked to provide all students with sufficient time on task to reach that goal. That district found great success in reaching their goal in the time allotted and have since begun touring the nation to disseminate their results. They attribute their results to the dedication of more time in developing reading abilities of their students and maximizing that contact time through classroom management and student interaction.

The National Center on Time and Learning (2012) indicated extended learning time is becoming one of the primary methods with which schools implement turnaround measures. They noted the U.S. Department of Education requires such measures to be considered for a School Improvement Grant. The Center declared there are over 1,000 schools in the United States currently employing the Extended Learning Time (ELT) methods and demonstrating significant growth as a result. Cooper, Valentine, Charlton, and Melson (2003) explored such options as modified school calendars to provide extended learning time. They synthesized research regarding such calendars to determine the effects the modified calendars had on student achievement. While they found little evidence to suggest an immediate positive response in all students' learning to a modified calendar, there was evidence to suggest the impacts would have been greater over a period of several years. Cooper, Allen, Patall and Dent (2010) also determined such a calendar to have a noticeably positive impact on students identified as at risk of failure due to prior poor performance or economic disadvantage. Smith (2011) also addressed a modified calendar to provide extended learning time. Among her findings, employing a modified calendar improved student achievement, particularly for lower socioeconomic status students and those with special needs. Additionally, the modified calendar was found to have positive impacts on student absenteeism, as well as instructor retention (Smith, 2011). While the

calendar provided only a few days of scheduled extra instruction, the increase in student attendance, as a result in the modifications, positively impacted achievement.

Research regarding extended learning time has grown as educators consider the value of summer school. Haymon's (2009) dissertation, for example, determined a statistically significant difference between the mean of scores for an experimental group testing before and after summer school when compared to a control group with no such intervention. Similar to Cooper et al. (2003) and Smith (2011), he noted the particularly strong results for students with a lower socioeconomic status. Aud (2001) suggested one way to make education for disadvantaged students more student-centered through Title 1 funding is to shift the federal formulas for allocations to provide resources for students in need in order to fund opportunities for struggling students, such as summer school. She noted, under current formulae, administrative costs hinder such offerings, but where school districts have allocated efficiently, positive results are easy to find.

Further research supports the claim that increased time on task for development of literacy skills is time well spent. McMurrer's (2012) case studies of increased time specific to time granted with the release of federal stimulus funds sought to understand the perceptions of instructors and administrators. Outcomes suggested increased student confidence with respect to reading and increased incidence of seeking help in the endeavor to learn to read. Similarly, Stockard and Engelmann (2010) demonstrated a positive impact on literacy with increased instructional time, specific to programs providing more opportunities to verbalize the concepts being taught. Oliver (2007) focused specifically on kindergarten and the three years following, asserting the increased time to work with literacy has a very positive effect on the building of fluency and ultimately comprehension. Results from Therrien (2004) and Calderon et al. (2011)

were similar, particularly with respect to students identified as having special cognitive needs as well as limited English proficiency. Those new to the English language often enter a phase of silence wherein they are unlikely to speak as they work to understand the constructs of both the English language and the social aspects of life in the English-speaking society.

Donaldson (2011) claimed students who were provided more opportunities to develop literacy in schools with high incidences of poverty are more likely to develop into stronger readers. Connolly and Olson (2012) regarded the impact of habitual absences and tardiness on student achievement in literacy. They found a positive correlation between students who did not attend as much as their peers and poor literacy skills, as well as greater incidence of referrals for special education. Those students who maintained a lower level of absenteeism in primary grades, however, tended to thrive as they matriculated through the grades. Maintenance of that low level of absenteeism contributed to commitment to their education remaining higher than those with greater absenteeism. Additionally, these students reported a significantly greater love for learning (Connolly & Olson, 2012).

While the above research suggests increased returns on students' literacy rates with increased instructional time, the ability to do so in a kindergarten environment becomes very limited, given the prevalence of half-day programs. Increasing the amount of responses is one way this can be achieved, according to Stockard and Engelmann (2010). LaBerge and Samuels (1974) as well as Samuels and Flor (1997) indicated the opportunity to increase interaction with the element one is attempting to master will support development of automaticity. This allows the brain, which is only capable of consciously attending to one task at a time, to focus on the task of understanding. Programs such as Reading Mastery allow for multiple responses, which, according to the researchers, can be a small substitute for instructional time (Stockard &

Engelmann, 2010). Essentially, they claimed, this creates the illusion of more time through interaction with the curriculum. The only other alternative suggested is extended-day kindergarten (Elicker & Mathur, 1997; Hough & Bryde, 1996; Saam, 2005).

Internationally, Miller, Malley, and Owen (2009) looked into correlations between countries in an attempt to determine aspects of instruction that appear worthy of consideration elsewhere. With respect to instructional time, 68% of primary instructors in the United States dedicated six or more hours on literacy instruction, the most in the studied countries. Comparatively, only 6% of primary instructors in Germany did the same, the least in the studied countries. The outcomes in those two countries correlate well with those numbers. Whereas, only 12% of the population in the studied schools in the United States did not complete high school or did not pursue formalized training after graduation, 48% of the German population did the same. The former represents the smallest percent of the studied countries and the latter represents the greatest percent. Results demonstrate a nearly exact correlation, as the country spending the second-most amount of time in literacy instruction had the second highest rate of high school graduates, and so forth. In all of the countries, those who went through higher academic education consistently maintained 80% employment rates. Those who did not pursue higher education ranged between 52% and 66% employed. The correlations were nearly direct between the amount of time spent in literacy instruction and the students going on to seek higher academic education.

## **Extended Kindergarten**

The ability to provide students in kindergarten more time to become fluent readers is both extremely difficult and exceedingly simple. Fitting more instructional time into 3.5 hours per day can be difficult, but doubling the amount of time at school makes this endeavor quite manageable. More and more schools are moving toward the use of an extended kindergarten option (Rathbun, 2010). Developing instructors' professional abilities in order to maximize the time spent with students is worthwhile, but only to a limited extent (Berliner, 1990; Fielding et al., 1998). Jackson (2009) and Saam (2005) indicated the vast majority of 5-year-olds are capable of maintaining focus on schoolwork for the extended period of time required to attend all-day, every-day kindergarten. Those students in Jackson's study who demonstrated stress tended to have health concerns or cognitive difficulties. When pre-taught the information before the lesson, however, their stress levels were noticeably lower, and they were able to concentrate more on the material rather than their bodies' physical feelings of uneasiness.

**Effective extended kindergarten models.** While there are several methods for implementation of extended kindergarten programs represented in schools, the research points to just a few methods showing positive results with even fewer demonstrating results that endure over the next several years. The reviewed research does not point to a clear example demonstrating the most effective strategies for implementation of an extended kindergarten program. Pockets of greatness exist, but finding the best model proves elusive. Rather than focusing on particular models that are effective, researchers examined the elements of those models that are particularly effective. Several have determined a focus on oral reading fluency, particularly the building blocks to achieve it, is a worthwhile instructional strategy for early learners (Arnold, 2009; Borman et al., 2008; Donaldson, 2011; Elicker & Mathur, 1997; Fuchs &

Fuchs, 2005; Grabe, 2010; LaBerge & Samuels, 1974; Rathbun, 2010; Samuels & Flor, 1997; Slavin et al., 2009; Spencer, 2011).

The Florence School District (1995) implemented several reform models in their K–12 system and tracked their results, including a full-day, every-day kindergarten program to provide extra opportunities to work with literacy and mathematics instruction for every student. This was left to the kindergarten instructors' discretion in collaboration with first-grade instructors to determine academic activities. This particular school district reported an average growth of 47% regarding letter-sound fluency when compared to the previous year's students' data. Typical growth was closer to 35% for comparable schools. Florence School District's students achieved this growth simply by the district providing instructors the latitude to make instructional decisions based on data and intuition.

Li-Grining, Maldonado-Carreno, and Votruba-Drzal (2008) examined all kindergarten students they could find in extended programs and compared them to students whose parents did not enroll them in extended kindergarten opportunities. They found, on the whole, students who participated in these programs demonstrated better-than-average growth. In general, however, this advantage tended to level off over time. Chapman (2009) found similar results as the advantages students enjoyed from time spent in a generic extended kindergarten program waned over the next few years, yielding students who struggled as much as their peers who had not benefitted from the extra time. Chapman's research did not examine the differences between the extended kindergarten offerings, but rather lumped those who did receive such intervention together and compared them to students enrolled in a more traditional half-day morning–afternoon or every-other-day program. Rathbun's (2010) report, using data from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K) examined data from

multiple stages in the original research. Data immediately following the kindergarten year indicated a significant difference between the achievement levels of those students participating in full day kindergarten and those enrolled in a standard half-day program. She indicated, “increasing the percentage of academic instructional time by one standard deviation . . . translated to a .05 standard deviation increase in children’s reading gains” (Rathbun, 2010, p. 6). Similar to Chapman’s research, Rathbun did not examine the different models implemented, but did find sustained benefits when examining the students’ progress over the next several years of their educational career.

These mixed results tend to dissuade educators from implementing extended kindergarten opportunities (Chapman, 2009; Hough & Bryde, 1996). Allocating the amount of funding necessary to undertake such an endeavor is something a school board does not often like to do without proven results. Beiswinger (2009) suggested students of homes qualified for free or reduced lunch have opportunities to build their academic language while at school that they would otherwise miss. Even the models of extended kindergarten that do not directly place a high value on literacy development often allow for vocabulary and communication development through activities designed to enrich the students’ days, such as science and the humanities. Placing a student in a classroom with an instructor capable of delivering instruction, assessing that instruction’s effectiveness, and providing support when necessary are correlated with increased student achievement, particularly when the instruction is delivered multiple times (Beiswinger, 2009).

Those models reported on by the researchers varied in several aspects of instructional delivery. Li-Grining et al.’s (2008) analysis of a longitudinal study, Cooper et al.’s (2010) meta-analysis, and Chapman’s (2009) look at yet another longitudinal study encompass countless

models for implementation of extended kindergarten. These include models primarily that allow for extension of understanding in science, extra work with the humanities, and activities focused on social development. While Hattie's (2009) meta-analyses regarding acceleration revealed the necessity for instruction to be quickened rather than slowed, many models for extended-day kindergarten allow for student rest time, citing the need for students at this age to have a mental break (Li-Grining et al., 2008). This necessity, however, is simply a perception of the instructors and administrators, not a research-based suggestion.

Zakulak, Straw and Smith's (2009) case study of an extended kindergarten program revealed very little positive impact on students' letter identification and sound recognition, as well as fluency development, over the next few years following student participation in the program. This program simply provided instructors more time to work with their one class of about 20 students, as opposed to the alternative of two classes and half the time. Students spent more time completing tasks, and instructors slowed their delivery down to answer students' questions, as well as provide for more "down time" as they moved through the day. While students did demonstrate a significant difference in some categories, such as word identification and concepts about print, their fluency levels were not significantly greater than their half-day counterparts. Researchers were underwhelmed by the rigor instructors required of their students and suggested providing more targeted activities, whether collaborative or whole-group, to create a more challenging and rich environment.

Elicker and Mathur (1997) examined classes including 247 students and found varying degrees of student engagement and activities in extended kindergarten. They also compared their findings to traditional half-day programs. By far, the most prevalent of instructional strategies in both extended and traditional programs was full-class, instructor-directed instruction. Small-



group, instructor-directed activities identified as the most valuable for struggling students were limited to just four minutes per day, per student in the traditional kindergarten classrooms and nine minutes per day, per student in the extended classrooms. The actual activities undertaken by students in extended-day programs were not accelerated or double dosed, but rather designed to give more time to complete the same work performed in half-day programs. Instructors found the extended program allowed for more flexibility and felt less constrained by time than those in half-day programs. Parents appreciated the social development and ease of child care in the extended program when compared to the traditional track. While extended program students demonstrated a slightly greater academic achievement than those in the traditional setting, the advantages came primarily from instructors getting to know their students better and being able to provide more targeted instruction and intervention with more time to do so. As extended kindergarten was simply a drawn-out version of traditional kindergarten, Elicker and Mathur (1997) suggested challenging students at a higher level might have provided a greater opportunity for extended-program students to flourish in the program.

**Student confidence.** One element that tended to remain high in students whose parents enrolled them in extended kindergarten programs was confidence. Cooper et al. (2010) analyzed the confidence of students in the extended program, finding a significant effect in student confidence not only with respect to literacy, but also personally. While the parents did not report a preference for extended kindergarten over the traditional alternative other than for cheaper day care, students demonstrated significantly positive effects in self-confidence and abilities to work and play with others. The latter is ranked among the most desirable characteristics of kindergarten students by kindergarten instructors by West (1995), who reported findings regarding instructor and parent perceptions on the confidence of the student. She suggested those

students who arrive at kindergarten with more confidence tend to grow more rapidly and with greater uniformity as a group. Those capable of interacting with other students in structured and unstructured environments are more likely able to focus on the instruction the instructor delivers or activities the instructor prescribes, and students learn with greater ease than if they do not have such abilities (West, 1995).

### **Double Dosing Instruction**

Spiraling tier-one instruction will find positive impacts on student achievement simply because students have a harder time forgetting what they have learned if it is presented to them repeatedly in an effective manner (Archer & Hughes, 2011). Archer and Hughes suggested students who do not struggle must be presented with a new vocabulary word 60 to 70 times before internalizing a usable definition of it. This number can double or triple for struggling students, particularly when the struggle is rooted in limited English proficiency. The U.S. Department of Education's (2010) look into what works for developing comprehension in students from kindergarten through third grade concurred, citing the need for more opportunities to practice what the instructor presents to struggling students. Calderon et al. (2011) extended this notion to include more time, as well as incidences in which students practice the new vocabulary. Goss and Brown-Chidsey (2012) found similar results with students who struggle cognitively. Even with documented mental impairments, students who were able to work with the research-based curriculum more often, particularly under the guidance of an instructor, had much greater numerical gains reported through interviews and surveys, than their counterparts without this benefit. Beiswinger (2009) suggested students who qualify for free or reduced lunch benefit from increased instructional time, particularly when provided multiple opportunities to engage in the material.

## Summary

Development of automaticity, first in letter naming, then letter-sound fluency, and eventually multisyllabic words and vocabulary is a necessary step in the endeavor to read with comprehension (LaBerge & Samuels, 1974; Samuels & Flor, 1997). There are practices kindergarten instructors can undertake that will positively benefit students more than others (Donaldson, 2011; Fuchs & Fuchs, 2005; Rathbun, 2010; Slavin et al., 2009). Developing rate of fluency through phonological awareness is a building block to freeing the students' minds to focus on comprehension skills later in their educational careers (Fuchs & Fuchs, 2005; Fuchs et al., 2001, Rathbun, 2010). Scripted curricula focusing on rate of fluency beginning with letter-name and letter-sound fluency are effective tools when taught with fidelity (Donaldson, 2011; Slavin et al., 2009; U.S. Department of Education, 2012). Appropriate extension of the curricula to meet the needs of the students can provide an even deeper level of student understanding, but the simple out-of-the-box program will outperform instructor-created materials in most cases (Donaldson, 2011; Slavin et al., 2009). Students demonstrated measurable and significant differences in post-test data when programs such as *Open Court Reading* and *Imagine It!* are utilized by schools and compared to those not employing such curricula (Arnold, 2009; Borman et al., 2008; Grabe, 2010; Spencer, 2011; U.S. Department of Education, 2012).

When provided more time to work with their students, instructors reported greater opportunities to target deficiencies in fluency, and their data supported this claim (Elicker & Mathur, 1997). These instructors demonstrated similar gains when using research-based techniques (Charlton, 2010; Leak & Farkas, 2011). Specific to kindergarten, one very simple method to provide instructors more time with their students is to enroll the students in an extended kindergarten program (Arnold, 2009; Borman et al., 2008; Grabe, 2010; Spencer,

2011). Programs examined in Arnold, Borman et al., Grabe, and Spencer are structured in a variety of ways, but the most prevalent of them involved one instructor dedicated to a class of about 20 students and provided the freedom to take all day to accomplish what the half-day traditional kindergarten program accomplishes, allowing for the slowing down of instruction and deepening of student understanding of the material, including extra exposure to arts and sciences. Providing a double dose of instruction in kindergarten is rarely an option (Donaldson, 2011; Elicker & Mathur, 1997; Florence School District, 1995). Districts and schools facing growing state and federal budget cuts may only be able to afford to dedicate 40-plus students to one instructor, which means half-day programs, as most states only fund kindergarten students at one-half the amount of regular first through 12th graders (Idaho State Department of Education, 2013). Research on early childhood education, however, demonstrates the significant financial impact to society when students in need of that early intervention are not supported academically in a way that helps them develop fluency and build toward comprehension in the intermediate grades (Pan, 2011).

Finding ways to provide struggling students, particularly those meeting factors for at-risk status, to receive a second dose of instruction during the same year and even the same day has proven valuable (Archer & Hughes, 2011; Beiswinger, 2009; Calderon et al., 2011; Goss & Brown-Chidsey, 2012). Students who have instruction delivered twice in rapid succession, as opposed to grade retention, develop confidence to focus on the material (Cooper et al., 2010; West, 1995). As their skills and confidence grow, so grows their ability to decode and read fluently. They are more likely to take risks and learn from them the second time through than they were the first time. This is particularly true of students working to learn the English language and developing both oral and reading fluency (Grabe, 2010). They require more

exposure to the new language structure, and explicit instruction is more impactful than a less structured alternative.

Not discovered in the literature is a single study that links all of the above together. This involves placing a student in a classroom with an instructor using a research-based curriculum and proven intervention methods for meeting the student's special needs, and giving the instructor more time to teach, using a second dose of instruction in order for students to reach mastery. The components are all there, but the link to them is not. While this is done in practice, the degree to which the intervention is effective and the confidence it brings are not addressed. Jackson (2009) suggested students struggling in a kindergarten classroom are likely to exhibit stress. This can lead to decreased participation and growth that are not as prolific in stressed students when compared to their relaxing and striving peers. Zelenka's (2010) dissertation found positive results in managing kindergarten students' stress levels through monitoring of learning and providing instruction targeted at student needs, while allowing them to find success. She found providing appropriate instruction, accelerated when possible, can help students manage the stress that comes with being a struggling learner and work through it rather than becoming crippled by it.

The youngest of students served in a traditional K-12 setting deserve the best possible chances to be successful. The bulk of the research regarding extended kindergarten options is either vague with respect to the actual academic activities occurring in the classrooms or speaks to extension opportunities to develop vocabulary and provide students opportunities to become familiar with classroom learning. While acceleration through double dosing literacy instruction is highly correlated with positive results for all students, particularly those who struggle, it is not a highly researched method for tier-three intervention. While many school districts dedicate

funding, particularly from Title 1 federal allocations, to providing students extended kindergarten opportunities, they have not examined their return on investment. Districts' instructors and administrators support the programs due to a perceived benefit. A district willing to invest the time to determine whether their primary program truly is benefiting students and having a lasting impact on their academic journey as a result is likely to refine their programs and find positive results.

## Chapter III

### Design and Methodology

#### Introduction

There are best practices for literacy instruction (Fuchs & Fuchs, 2005; Fuchs et al., 2001), particularly in students at risk of struggling or failing (Hattie, 2009; Protheroe, 2007; Roderick Engel, & Nagaoka, 2003). Scripted curricula demonstrate positive correlations with student achievement when taught applying fidelity to the program (Donaldson, 2011; Slavin et al., 2009; U.S. Department of Education, 2012). The curricula particular to this research were supported in research as demonstrating a positive impact on students (Arnold, 2009; Borman et al., 2008; Grabe, 2010; Spencer, 2011; U.S. Department of Education, 2012). The positive results were not limited to instructors with higher degrees, experience, or certifications (Charlton, 2010; Leak & Farkas, 2011). Extended kindergarten opportunities have proven valuable, although not consistently (Beiswinger, 2009; Chapman, 2009; Cooper et al., 2010; Elicker & Mathur, 1997; Florence School District, 1995; Hough & Bryde, 1996; Jackson, 2009; Li-Grining et al., 2008; Saam, 2005; Zakulak et al., 2009). Providing a second dose of literacy instruction is a valuable intervention (Chidsey, 2012; U.S. Department of Education, 2010), and both extended kindergarten and second doses of instruction have positive impacts on students' confidence and desire to participate in class (Cooper et al., 2010; West, 1995).

While the list of best practices is long, putting them together is quite simple. Traditional kindergarten programs do not easily allow for a second dose of literacy instruction, due to their brevity as half-day programs. Providing students at risk of failure a second dose of literacy with an instructor delivering a research-based scripted literacy program is the intervention examined in this research. Determining the effects of such an intervention is the endeavor of this research.

Kindergarten students in two adjacent and similar districts, each with a distinct philosophy regarding allocation of funds for kindergarten instruction were examined. Research questions follow that will help explore the topic at hand in further details:

1. What is the benefit of a second dose of literacy instruction on students likely to struggle during the kindergarten year?
2. How much of the hypothesized benefit is gained from enrollment in a second dose of literacy instruction?

*Independent variable.* The independent variable of this research was the participation in an extended kindergarten program offered in six of the 12 schools participating in the study. The control group attended kindergarten only half-day, either morning or afternoon, in a traditional setting. The experimental group attended kindergarten all day, five days per week, and received a second dose of literacy instruction during the extra time.

*Dependent variable.* The dependent variable of this research was the academic achievement of kindergarten students in both the control and experimental group, including both their performance on standardized tests, and the perceptions of their parents and instructors. Student gain scores on the IRI as a numerical score indicating letter-name fluency and letter-sound fluency measured the impact of the intervention. Data were triangulated using those gain scores, as well as responses to parent and instructor surveys, employing a Likert scale and opportunities to respond through open-ended questions.

## **Research Design**

The research design employed was a nonequivalent control group, pre-test–post-test design using mixed methods for data collection. Letters of support from the districts from which experimental and control samples were drawn were acquired (see Appendices A and B). The



null hypothesis ( $H_0$ ) of this study states there will be no statistically significant difference demonstrated in students' growth in letter-name fluency and letter-sound fluency from fall to winter for those who attended extended kindergarten compared to those who did not attend. The alternate hypothesis ( $H_1$ ) states there will be a statistically significant difference in students' growth in letter-name and letter-sound fluency from fall to winter. Determinations were made using quantitative results from pre-testing and post-testing of letter-name and letter-sound fluency using the IRI. They were triangulated using results from 5-point Likert parent and instructor survey tools including responses to open-ended questions on those surveys.

The nonequivalent control group, pre-test–post-test design is desirable for quasi-experimental research when there are clear differences between control and experimental groups (Creswell & Plano-Clark, 2011). Due to the involvement of two distinct school districts, these differences were unavoidable. Kindergarten students from one school district served as the population for the experimental group while kindergarten students from the other school district served as the population for the control group. Fisher and Foreit (2002) stated using the pre-test, one can determine if the control and experimental groups begin statistically similar and suggested searching for populations that share important common characteristics. Should the results be statistically dissimilar, statistical regression measures can be taken to account for the differences. The post-test results can then be analyzed for effect size (Fisher & Foreit, 2002).

The mixed-methods approach is desirable due to its abilities to provide a much more holistic view of the topic than a single method (Abbas-Tashakkori, 2003; Creswell & Garrett, 2008; Creswell, Hanson, Plano Clark, & Morales, 2007; Creswell & Plano-Clark, 2011; Greene, Caracelli, & Graham, 1989; Wurtz, 2009). Whereas the gathering of numerical data is statistically relevant, human responses to the questions provide a story behind the numbers.

Abbas-Tashakkori (2003) suggested such mixed methods provide the researcher an opportunity to include environmental and social contexts in the development of understanding of the effects of the intervention. Creswell and Garrett (2008) stated a researcher should consider “mixed methods as a means of collecting, analyzing, and using both qualitative and quantitative data within an established approach” (p. 328). Greene, Caracelli and Graham (1989) and Wurtz (2009) suggested the triangulation of data using a mixed-methods approach allows for the qualitative data to complement the quantitative data, filling in more of the story than the former would have standing alone. Wurtz also wrote of a responsibility to choose to report quantitative and qualitative findings together or separately. Given the concurrent triangulation design employed, the results here are reported together with numerical evidence supported by qualitative responses to surveys of parents and instructors.

An explanatory sequential version of mixed-methods design was employed to collect and analyze data. Creswell and Plano-Clark (2011) suggested this design when the quantitative results will be analyzed primarily, with the qualitative results supporting or refuting those outcomes. The quantitative results, collected first through pre-tests and post-tests, as well as surveys, were complemented by responses to the open-ended questions posed at the end of the survey.

## **Participants**

Participants from the experimental and control populations were enrolled in kindergarten in two medium-sized school districts in rural southwestern Idaho during the 2013–2014 school year. Letters of support from the districts from which experimental and control samples were drawn were acquired (see Appendices A and B). The districts were similar in size, between 6,000 and 7,000 students per district and shared some similar demographic characteristics. Both school

districts included six elementary schools. All but one of the schools were identified for school-wide Title 1 support, with at least 60% of students receiving free or reduced lunch. Eleven of the schools included minority students within the range of 32% to 66%, the one outlier in the control group at 10%. Table 1 outlines percentages of students enrolled in each school categorized under free and reduced lunch, Hispanic, and white.

Table 1

*School Demographics*


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Total Students		FRL	Hispanic	White
1A	562	66%	31%	59%
1B	647	66%	26%	68%
1C	684	77%	37%	55%
1D	612	54%	10%	82%
1E	622	69%	39%	54%
1F	659	74%	41%	53%
Total	3786	68%	31%	62%
2A	461	83%	62%	35%
2B	403	84%	54%	43%
2C	516	90%	64%	34%
2D	689	83%	57%	40%
2E	636	86%	53%	42%
2F	488	68%	46%	52%
Total	3193	82%	56%	41%

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*Source:* Both school districts' business office reports.

Note: Experimental school district is notated as "1," control district is notated as "2." FRL = free and reduced lunch.

Students were identified through the IRI, which assessed critical skills in primary students' reading abilities to predict future reading successes (Idaho State Department of

Education, 2010). Those scoring as intensive, a “1” on the fall IRI, were capable of identifying zero, one, or two letter-sounds in a minute and comprised the populations for the experimental and control groups. Parents of kindergarten students who scored a one on the fall IRI from the first, experimental, school district number 1 were given the opportunity to enroll those students in an extended kindergarten opportunity. Only three percent of parents offered this opportunity for their students declined. Parents of kindergarten students who scored a one on the fall IRI from the second, control school district were not given the opportunity to enroll in an extended kindergarten opportunity, as the district does not offer such a program. In the fall of 2013, 98 students were identified as a 1 on the IRI in the control district and 104 were identified in the experimental district. All students whose legal guardians provided informed consent from that population were included. Inclusion of the entire population can help control for maturation effects (Wuensch, 2003). Following acquisition of informed consent from legal guardians (see Appendix E), students were placed in the experimental or control group. Legal guardians were provided the Idaho State Department of Education brochure, Idaho Reading Indicator (IRI) Parent Information (see Appendix F). Instructors were provided the Idaho State Department of Education brochure, Idaho Reading Indicator Teacher Brochure (see Appendix G).

*Observation.* While data from observations were not included in analyses of outcomes, the researcher did spend time observing classrooms within the control and experimental groups, to gain context for the learning activities provided. Early discussions with school administrators provided some clarity with respect to those activities, but opportunities to observe the work of the students and instructors resulted in better understanding and context. Students were observed engaged in activities they had been introduced to in the regular classroom, to solidify understanding. They were also pre-taught the next day’s information, allowing them to build

skills before whole-class introduction. The extended kindergarten opportunity provided students opportunities to practice literacy skills both before and after they were introduced to them in their regular kindergarten class.

### **Data Collection**

*Quantitative data.* Quantitative data were collected using the IRI as a pre-test in the fall and post-test in the winter, as well as through Likert-style, 5-point surveys of parents and instructors of the students in the control and experimental groups. The surveys were administered to parents before and after the treatment, whereas instructors were surveyed only following the intervention.

Wuensch (2003) indicated the employment of a pre-test–post-test design to be favorable. In this case of whole-population examination, doing so can help control for maturation as effect sizes can be examined rather than true gain scores. Dimiter and Rumrill (2003) also advocated for such a design and recognized maturation effects can threaten internal validity but can be accounted for through *t*-tests.

Likert surveys were employed to quantify the sentiments of the parents (see Appendix C) of students in the control and experimental groups and instructors (see Appendix D) working with students in the experimental groups. Babbie (2012) indicated the use of such surveys allows for standardization of data. These surveys were pilot tested by content experts to be certain they measured the outcomes they were intended to measure (Hawe, Degeling, & Hall, 1990). Students were not chosen to participate in the survey portion of the data collection phase. Jansen (2010) indicated results of such surveys from participants under about eight years of age are inconsistent and not likely representative of the students' true sentiments regarding their experiences. The surveys were administered to parents at the beginning of the school year and in the winter.

Administering them twice allowed for the effect sizes to be analyzed. Surveys were also administered to instructors in the winter. Instructors were not surveyed during the fall. Their abilities to comment on their students' abilities with respect to literacy would have been extremely limited, having just begun to work with the students.

Polit and Beck (2006) indicated the use of an item content validity index (I-CVI) to be favorable in determining the value of survey questions with respect to the research questions. Likert survey questions for both the parent survey and the instructor survey were validated by five content area experts using a four-point scale. These experts were kindergarten teachers not involved in the research in any other capacity. A "one" indicated the expert did not consider the question to be strong enough to employ in the survey. A "four" indicated the expert considered the question to be very strong. Polit and Beck suggested ratings of a "three" or "four" to be favorable toward the validation of the questions. Through content area experts' feedback and adjustment of the question verbiage, outcomes indicated instrumental content validity at 1.0 for the instructor instrument and .975 for the parent instrument. Lynn (1986) indicated an instrument with a score of 1.0 to .78 would have excellent content validity, as both of these instruments did. Tables 2 and 3 indicate the I-CVI for the instructor and parent surveys, respectively, as determined by the content area experts through the validation process. A copy of the parent survey can be found in Appendix C. A copy of the instructor survey can be found in Appendix D.

Table 2

*I-CVI Instructor Survey*

Question	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	# in agreement	I-CVI
1	4	3	4	4	4	5	1.0
2	3	3	4	4	3	5	1.0
3	3	3	4	4	4	5	1.0
4	4	3	4	4	3	5	1.0
5	4	3	3	4	4	5	1.0
6	3	4	4	4	4	5	1.0
7	4	4	4	4	3	5	1.0
8	4	3	4	4	4	5	1.0
mean I-CVI = 1.0							

Table 3

*I-CVI Parent Survey*

Question	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	# in agreement	I-CVI
1	4	4	4	4	4	5	1.0
2	4	4	4	4	3	5	1.0
3	4	4	4	4	4	5	1.0
4	4	4	4	4	3	5	1.0
5	4	4	3	4	4	5	1.0
6	3	2	4	4	4	4	.80
7	4	4	4	4	3	5	1.0
8	4	3	4	4	4	5	1.0
mean I-CVI = 0.975							

*Qualitative data.* Qualitative data were collected through open-ended questions included on the Likert-style surveys. Employment of both the Likert-style and open-ended questions allowed for the surveys to help explain the quantitative data gained through the pre-tests and post-tests (Babbie, 2012). Babbie's (1973) work specifies this can allow for deeper understanding of the effect size, providing a more holistic perspective of the impact of the intervention. Surveying parents of the entire student cohort allows for such an action (Diehr, Martin, Koepsell, Cheadle, Psaty, & Wagner, 1998). While Diehr et al. (1998) recognized that



not all of the surveys will return, when it is possible to survey the entire cohort, it is worth doing so to gain as much of the input as possible.

### **Analytical Methods**

Measures employed for exploration of outcomes included *t*-tests to measure differences in pre-tests and post-tests between the control and experimental groups. Cohen's *d* was employed to determine effect size. The *t*-test was employed to analyze differences from questions posed on the Likert surveys given to parents as pre-surveys and post-surveys. A Mann Whitney *U* was also run to analyze instructors' responses to the Likert survey. This non-parametric analysis was chosen as the small population size of instructors did not allow for parametric analyses to be employed.

Pre-test and post-test outcomes were analyzed using *t*-tests at  $\alpha = .05$ . Such analysis is preferred when using pre-tests and post-tests to find gain scores (Dimiter & Rumrill, 2003; Gravetter & Forzano, 2011; Tanner, 2012). Dimiter and Rumrill (2003) suggested using the pre-test as a baseline to reduce error variances helps create more powerful quasi-experimental designs.

In order to suggest one's tool will accurately measure what it is intended to measure over repeated trials, given stable conditions, one must determine the reliability of that tool (Creswell, 2012; Marshall & Rossman, 2011; Rosenthal, 2001; Tanner, 2012). These repeated trials may include similar respondents or the same respondents in multiple assessments. Marshall and Rossman (2011) suggested the trustworthiness of an instrument is increased with increased reliability, particularly as measured in quantitative analyses. The outcome, therefore, would be more generalizable and carry more weight than a less reliable instrument. Providing several questions in an attempt to assess the same factor can help determine the reliability of those

questions. Multiple questions posed in this fashion, with very dissimilar responses would indicate poor reliability (Annenberg Institute, 2013).

Analysis of reliability of a survey can be achieved through the use of Cronbach's Alpha, which compares the reliability of each item against the reliability of the instrument as a whole (Tanner, 2012). This is a particularly appropriate measure to take when employing a Likert scale survey, as such an instrument is easily quantified (Creswell, 2012; Rosenthal, 2001). The piloting and calibration stages of development of an instrument can help the researcher determine which questions adversely affect the reliability of the tool. These questions can be rewritten or omitted to positively impact the tool's reliability (Creswell, 2012). Once the instrument is piloted and calibrated, one can determine its reliability through use of the Cronbach's Alpha measure in reference to the actual outcome of the survey (Creswell, 2012; Tanner, 2012). A higher outcome on a scale from 0 to 1.0 indicates a more reliable, or internally consistent, instrument. The generally recognized cut score for such a measure is 0.7, as proposed by Cronbach (1951) and Nunnally (1978). The Alpha measures for the parent and instructor survey were 1.0 and .98, respectively.

Cohen's *d* was employed to analyze effect size of gain scores from the pre-test to the post-test for any significance found in the *t*-test results. Tanner (2012) indicated such analysis can quantify the impact of the intervention on the differences in gain scores. This analysis was completed on gain scores from the students' pre-test to the post-test on the IRI, assuming statistical significance between groups was at  $\alpha = .05$ .

**Presurveys and postsurveys of parents.** A *t*-test was employed to analyze differences in presurveys and postsurveys of parents. This was the preferred method for analysis because there

were more than two independent groups, and the dependent variable was quantified on an ordinal scale (Dimiter & Rumrill, 2003; Tanner, 2012).

**Post-survey of instructors.** A Mann Whitney *U* was employed to analyze results of the surveys of instructors, at  $\alpha=.05$ , comparing the results from instructors employed in the control and experimental school districts. This nonparametric measure was chosen as an appropriate analytical method for ordinal data representing unique populations with data that do not follow normal distribution (Tanner, 2012). It is an appropriate measure for samples without equal numbers of participants (Dimiter & Rumrill, 2003; Tanner, 2012).

**Qualitative analysis of survey results.** An element of the surveys distributed to both parents and instructors included opportunities for both to respond using text to describe ordinal responses. Jansen (2010) indicated such a tactic allows the researcher to explore other elements of the intervention and its impact that might not have otherwise been explored using only quantitative methods. Loehnert (2010) suggested such surveys may be used to add another element of quantifiable data using coding procedures, but Wurtz (2009) proposed using responses to triangulate understanding of the responders' perceptions. In his explanation of concurrent triangulation, it was suggested either quantitative or qualitative results be given priority, the former being the primary focus here. Qualitative responses were given a confirmatory role in order to support the quantitative outcomes.

**Timing.** The Idaho State Department of Education stipulates that IRI scores be reported by a certain date, typically the end of September for fall administration and early February for winter administration. Analysis of IRI gain scores was completed one week following closing of the testing window. Pre-intervention surveys were administered to parents in late August and returned by September. Analyses of quantitative and qualitative data were completed by late

October. Post-intervention surveys were administered to parents and instructors in mid-January and returned by early February. Analyses of quantitative and qualitative data were completed by late February.

### **Pilot Study**

A pilot study, conducted two years prior to the intervention for the dissertation, provided insight into several aspects of the research. Polit, Beck, and Hungler (2001) indicated doing a pilot study on a scale of about 10% of the future research may provide insight into the methods employed and possible outcomes.

During the 2011–2012 school year, a pilot study was run at a school in one of the districts involved in this research. Eight students were identified by the IRI as likely to struggle, and took place in the pilot study. All eight of the students' parents granted permission for their students to take part in the intervention. The students simply attended the opposite section of kindergarten in addition to the one in which they were enrolled. Morning enrollees attended the afternoon session, and afternoon enrollees attended the morning session. The eight identified students scored the lowest of that school's entire (2011–2012) kindergarten class on the IRI. The independent variable was participation in the extended kindergarten intervention. The dependent variable was the students' growth in letter-sound fluency as measured by the IRI. The cohort was compared to the next eight lowest students in the class and tracked through their first-grade year, ending in 2013. The intervention took place for the same duration as the larger dissertation research, although it ran from winter to spring rather than fall to winter.

**Kindergarten year.** Students in the experimental group demonstrated growth at a greater rate than those not receiving the intervention, finishing the year more prepared for first grade, as measured by letter-name and letter-sound fluency on the IRI, than their control group classmates.

Beginning the intervention with an average letter-sound fluency of two per minute, students participating in the intervention achieved an average of 33 letter-sounds per minute in the spring, an average growth of 31 letter-sounds per minute. Students in the control group averaged five letter-sounds per minute in the winter and grew to an average of only 31, a growth of just 26 letter-sounds per minute. In the entire kindergarten cohort, all students averaged 18 letter-sounds per minute in the winter and grew to 45 by the spring, a growth of 27. Table 4 delineates the differences in the average letter-sound fluency and growth between the control group, experimental group, and all students in the kindergarten cohort during the 2011–2012 school year.

Table 4

*Pilot Study: Average Letter-Sound Fluency—Kindergarten Cohort 2011–2012*

	Winter	Spring	gain	Fall (1st Gr.)	gain
Control Group	5.50	30.00	+24.5	16.75	-7.75
Experimental Group	4.88	37.00	+32.13	26.75	-5.38
All Students	15.68	47.55	+31.87	36.88	-10.67

Kindergarten instructors expressed enthusiasm for the students' participation and confidence during the afternoon sessions, having already worked through the curriculum one time. They reported greater student participation and a perceived increase in self-efficacy of the students.

**First grade.** All 16 students returned for the following year and began first grade at the school. As the first-grade instructors benchmarked and separated students for leveled reading intervention, having no knowledge of the pilot study or its participants, none of the eight in the

experimental cohort were identified for strategic or intensive placement. Of the eight in the control group, five were placed in the intensive group for intervention and two in the strategic group. One other was assigned to the benchmark, or grade-level, group. Students who received the extended kindergarten intervention experienced a less dramatic “summer slide” than both the control group and the entire kindergarten class. Students in the experimental group decreased by an average of four letter-sounds per minute, while the control and whole-class groups decreased by five and seven, respectively.

At the time of writing this dissertation, seven of the eight students in the experimental group, now beginning their second-grade year, are at benchmark for second grade, and fall IRI results indicate they will find success during their second-grade year and beyond. The one student not identified as benchmark is currently undergoing eligibility testing for cognitive impairment. Of the control group, three of the eight students are identified as benchmark, and the other five continue to struggle, one of whom is also undergoing eligibility testing for a specific learning disability, demonstrating benchmark performance in mathematics.

**Implications.** The outcomes of the pilot study were encouraging. Kindergarten instructors reported excitement and satisfaction over the students’ growth. Parents echoed these sentiments and remained very appreciative of the proactive intervention provided their students. First-grade instructors were surprised to learn the eight students who participated in the extended kindergarten intervention had struggled during their kindergarten year. Given these positive results, examination of such an intervention on a grander scale was intriguing, and administrators in both school districts were encouraged by the possibilities.

## **Limitations**

Limitations are potential weaknesses in the research that are out of the control of the researcher (Creswell, 2012). Known and considered limitations are addressed below.

**Duration.** The first threat to internal validity is duration. The research was conducted during one fall semester. While this was sufficient time to determine the impact of an intervention, further data collection could yield even more descriptive results.

**Implementation.** Whereas all kindergarten students were taught by 27 different homeroom kindergarten instructors and students in the experimental group by six different intervention instructors, implementation of core instruction, as well as the intervention, was likely to vary. Two school districts using scripted programs produced by the same publisher were chosen as an attempt to control this limitation.

**Maturation.** Subjects began the intervention at age 5 and, though many of them ended the intervention also at age 5, the few months from beginning to end represented a significant percentage of their lives. The extent to which students' gain scores were attributable to their instruction as compared to their maturation was a threat to internal validity. This was addressed through evaluation of a control group and comparisons of pre-tests.

**Mortality.** Both school districts included a high percentage of students whose families were migratory in nature. Losing participants was a threat to internal validity. Beginning with a sample size large enough to end with enough participants to draw inferences was an attempt to address mortality.

**Regression toward the mean.** Students were identified by one fall benchmarking test. Those students who did not perform well on that exam due to test anxiety were likely to be identified as outlying, at-risk students.

**Selection bias.** Selection bias is a threat to internal validity. This was controlled to an extent through use of a *t*-test with a nonequivalent control group, pretest–posttest design, but differences between control and experimental groups were present.

### **Delimitations**

Delimitations are defined as addressed limitations to the study within the scope of influence of the researcher (Creswell, 2012).

**Student age.** Students receiving the intervention were 5 and 6 years old. They were not cognitively capable of providing a high-quality analysis of their sentiments regarding the intervention and, therefore, were not collected. Any feedback from these students could not have been analyzed for the purposes of explaining the impact of the interventions.

**Curriculum.** The research was conducted using subjects from two different school districts, each employing a different scripted curriculum. Science Research Associates' *Imagine It!* (2008) is a reincarnation of *Open Court Reading* (2002). Introduction of letter-sounds occurs earlier in the scripted schedule of the newer version. The school district using *Open Court Reading* (2002) made efforts to modify the curriculum to match the schedule of *Imagine It!* (2008), however, and introduced letter-sounds along with letter-names earlier in the year.



## **Chapter IV**

### **Results**

#### **Introduction**

This study's primary focus was to determine whether an extended day intervention of kindergarten, providing a second opportunity to work through the reading curriculum, would positively affect at-risk students' abilities to make catch-up growth toward proficiency with respect to letter-name fluency and letter-sound fluency. It includes parents' perceptions of their students' strengths in reading as well as instructor perceptions of the value found in the intervention. Results were triangulated through use of the four measures: Idaho Reading Indicator (IRI) letter-name and letter-sound fluency gains of those students whose guardians provided consent, parent surveys, and instructor surveys. The validated surveys included questions aimed at determining the parents' and instructors' sentiments regarding the strengths of the students relative to literacy. The survey of parents was offered in both the fall and winter. Instructors were surveyed only once, near the conclusion of the research, as their abilities to comment on students' strengths and needs in the first few days of a school year would have been very limited.

#### **Participants**

Student participants from the experimental and control populations were enrolled in kindergarten in two adjacent school districts in rural southwestern Idaho during the 2013–2014 school year. Parent participants were voluntary respondents to surveys administered in the fall and winter. Participants in the fall included only parents and students. Instructor surveys were administered only in the winter.

*Idaho Reading Indicator participants.* Demographics are included in Table 5. Headings are Female (F), Male (M), Caucasian (C), Hispanic (H), students not qualifying for free or reduced lunch (NotFRL), and those qualifying for free or reduced lunch (FRL).

Table 5

*Student Participants – Fall Idaho Reading Indicator*

	Sample	F	M	C	H	NotFRL	FRL
Control	49	21	28	11	38	16	33
Experimental	64	29	35	25	39	10	54
Totals	113	50	63	36	77	26	87

By the winter testing administration, five students from the control group, and four students from the experimental group had changed schools, bringing the final number of participants to 44 and 60, respectively. Participants from whom results were reported in both the fall and winter are delineated in Table 6. Percentages of entire populations are indicated in the parentheses.

Table 6

*Student Participants – Fall and Winter Idaho Reading Indicator*

	Sample	F	M	C	H	NotFRL	FRL
Control	44	20 (45%)	24(55%)	10(23%)	34(67%)	15(34%)	29(66%)
Experimental	60	26 (43%)	34(57%)	24(40%)	36(60%)	9(15%)	51(85%)
Totals	104	46 (44%)	58(56%)	34(33%)	70(67%)	24(23%)	80(77%)

**Parent survey participants.** Data were also collected through surveying of parents of students enrolled in the control and experimental groups. Data pertaining to respondents' ethnicities and total responses to fall surveys are outlined in Table 7. These represent 20% of the possible responses in the control group, and 29% from the experimental group.

Table 7

*Parent Participants – Fall Surveys*

	Sample	Caucasian	Hispanic
Control	38	8	30
Experimental	56	23	33
Totals	94	31	63

Data pertaining to respondents' ethnicities and total responses to winter surveys are outlined in Table 8.

Table 8

*Parent Participants – Winter Surveys*

	Sample	Caucasian	Hispanic
Control	12	5	7
Experimental	35	8	27
Totals	47	13	34

**Instructor Survey Participants.** Data were also collected in the winter through surveying instructors of students enrolled in the control and experimental groups. Nine responded from the control group, representing 90% of kindergarten instructors in the control district. Fifteen responded from the experimental group, representing 95% of instructors in the experimental district.

**Measure One: Idaho Reading Indicator**

The first measure of the research involved the collection of IRI results for both the experimental and control group students and examination of the results. In the fall, 113 consent forms returned with positive signatures: 49 from the control group, representing 25% of the population. Sixty-four were returned from the experimental group, representing 47% of the experimental population. By the winter, five students from the control group, and four students from the experimental group had changed schools, bringing the final number of participants to 44 and 60, respectively. Results were collected relative to Letter-name Fluency (LNF), and Letter-sound Fluency (LSF) in both the fall and the winter. They were analyzed for consistency between school districts, and between subgroups of those school districts, to determine any baseline differences. Subgroups included gender, ethnicity, and free or reduced Lunch (FRL) status.

*Fall letter-name fluency.* Table 9 outlines the pre-test mean LNF scores for each subgroup. The average student could name less than one letter name per minute, in both the control and experimental groups.

Table 9

*Fall LNF Mean Scores*

	Sample	F	M	C	H	Not FRL	FRL
Control	.55	.76	.39	.55	.55	.56	.55
Experimental	.52	.72	.34	.60	.46	.70	.48

*Comparison of samples.* An independent *t*-test is appropriate, assuming normal distribution of participants, for determining whether two samples come from populations with the same mean (Tanner, 2012). The independent *t*-test was performed to analyze the samples for the control and experimental groups, at 49 participants, .55 mean LNF, and 64 participants, .52 mean LNF respectively. Results indicated similarities between the two samples to suggest they were starting with statistically similar mean LNF scores, at  $t = .24$ . Any positive, statistically significant difference for the experimental group at the conclusion of the intervention, therefore, could be suggested to be a result of the reception of the intervention, indicating a rejection of the null hypothesis. Statistical regression measures, therefore, were not warranted for LNF comparisons.

*Comparison of subpopulations.* Similar to the above analysis of the entire samples, a comparison of the subpopulations was performed using independent *t*-tests. Table 10 delineates the outcomes of the *t*-tests.

Table 10

*LNF subpopulation fall t-test outcomes*

	Female	Male	Caucasian	Hispanic	Not FRL	FRL
Sig.	.88	.77	.86	.61	.66	.72

Because the significance is greater than .05 in each comparison, it can be suggested that the populations are statistically similar, prior to the implementation of the intervention. Any positive, statistically significant difference within any subpopulations of the experimental group when compared to the control group at the conclusion of the intervention, therefore, could be suggested to be a result of the reception of the intervention, indicating a rejection of the null hypothesis. Statistical regression measures, therefore, were not warranted for LNF comparisons of subpopulations.

*Winter Letter-name fluency.* Table 11 outlines the mean LNF scores by subgroup, delineated by fall and winter.

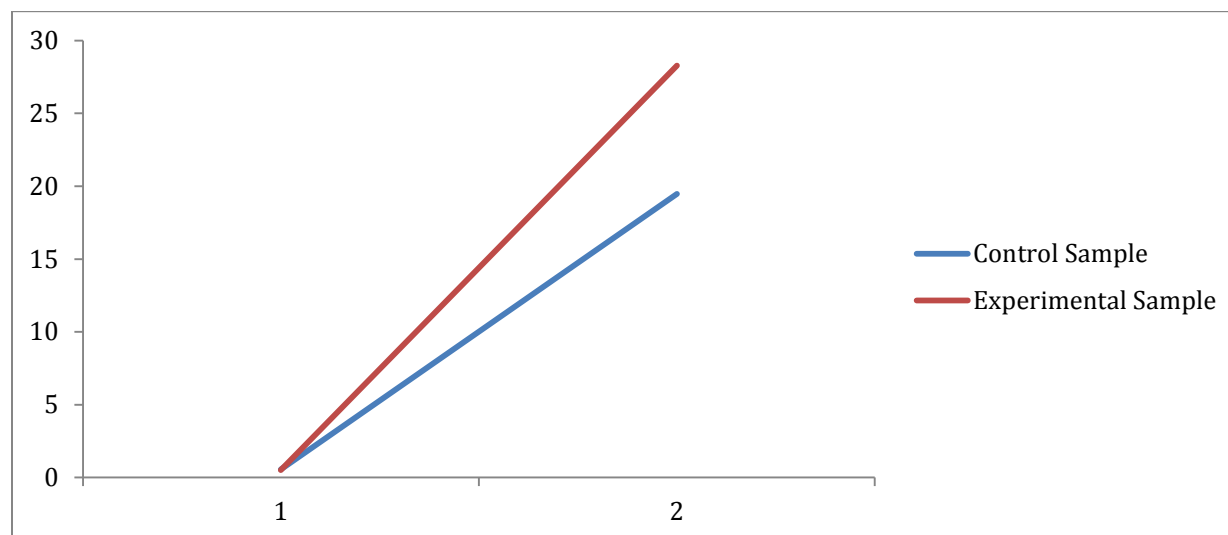
Table 11

*Fall and Winter LNF Mean Scores*

	Sample	F	M	C	H	Not FRL	FRL
Control Fall	.55	.76	.39	.55	.55	.56	.55
Control Winter	19.48	19.47	18.38	21.40	17.86	22.94	19.71
<b>Gains</b>	<b>+18.93</b>	<b>+18.71</b>	<b>+17.99</b>	<b>+20.85</b>	<b>+17.31</b>	<b>+22.38</b>	<b>+19.16</b>
Experimental Fall	.52	.72	.34	.60	.46	.70	.48
Experimental Winter	28.27	21.85	33.33	21.92	32.63	19.78	30.41
<b>Gains</b>	<b>+27.75</b>	<b>+21.13</b>	<b>+32.99</b>	<b>+21.32</b>	<b>+32.17</b>	<b>+19.08</b>	<b>+29.93</b>
Gains Differences	8.82	2.42	15.00	0.47	14.86	-3.30	10.77

*Comparison of samples.* An independent *t*-test was performed to analyze the significance of difference in outcomes for the control and experimental groups, at 44 participants, 19.48 mean LNF, and 60 participants, 28.27 mean LNF respectively. At  $\alpha = .05$ , the p-value for comparison of the entire cohorts was .01, indicating a statistical difference between the control and experimental groups. Figure 1 demonstrates the differences between control and experimental groups, from fall to winter.

Figure 1

*Entire Sample Letter Naming Fluency – Fall to Winter*

*Nationally normed outcomes comparison.* Comparisons with national norms support the generalizability of the results found relative to letter-name fluency. Kindergarten students' rates of fluency are expected to grow by about 20 letter names per minute, fall to winter. While the control group nearly achieved that, the experimental group out-paced that expectation by nearly eight letter names. At 1.54 letter names per minute gained per week, the experimental group placed in the 65th percentile, on average, for growth when compared to national norms set forth by the *AIMSweb ROI Growth Norms Table – Letter Name Fluency* (Pearson, 2012).

Comparatively, at 1.05 letter names per minute gained per week, the control group's results placed them at about the 44th percentile.

*LNF effect size.* Cohen's  $d$  is an appropriate measurement for determining effect size when there exists a significant difference (Tanner, 2012). Use of the Cohen's  $d$  analysis tool indicated  $d = .53$ , suggesting the intervention had a moderate effect on the students' fall scores. About 35% of the difference in the students' outcomes with respect to letter naming fluency is likely to have been a result of participation in the intervention.



*Comparison of Subpopulations.* Similar to the above analysis of the entire samples, a comparison of the subpopulations was performed using independent *t*-tests. Table 12 delineates the outcomes of the *t*-tests.

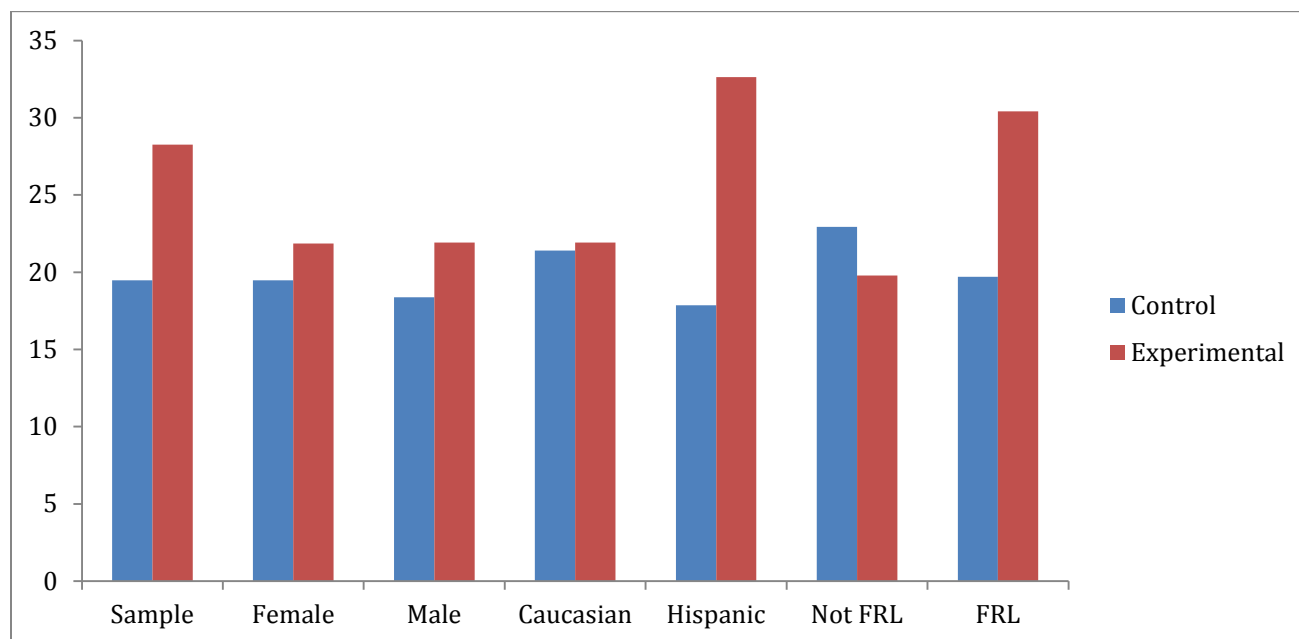
Table 12

*LNF Subpopulation Winter T-Test Outcomes*

	Female	Male	Caucasian	Hispanic	Not FRL	FRL
Sig.	.45	.01	.43	.01	.92	.02

Because the significance was greater than .05 in comparisons of females, Caucasians, and those not qualifying for free or reduced lunch, it can be suggested that the populations were statistically similar following administration of the Winter IRI. This indicated a failure to reject the null hypothesis for these groups. Males, Hispanics, and students qualifying for free or reduced lunch, however, were statistically dissimilar between control and experimental groups, indicating a rejection of the null hypothesis. The differences in these groups could be suggested to be strong or very strong. Figure 2 represents the differences in subpopulations' growths with respect to Letter-name Fluency from fall to winter.

Figure 2

*Subpopulations' Letter-name Fluency Growth – Fall to Winter*

*Subpopulations' effect sizes.* For those subpopulations whose difference was determined to be statistically significant for students participating in the extended-day kindergarten intervention, a measurement of effect size was completed. These groups included the male students, Hispanic students, and those qualifying for free or reduced lunch. For male students, the outcome included  $d = .73$  and  $r = .34$ , indicating a large effect size, about 42% of the difference attributable to the intervention. For Hispanic students, the outcome included  $d = .83$  and  $r = .38$ , indicating a medium effect size, about 38% of which could be attributable to the intervention. Finally, outcomes for students qualifying for free or reduced lunch included  $d = 1.18$  and  $r = .51$ , indicating a large effect size, about 60% of which could be attributable to the intervention.

*Fall Letter-sound Fluency.* Table 13 outlines the mean Fall Letter-sound Fluency (LSF) scores for each group. Students were able to identify less than one letter sound per minute.

Table 13

*Fall LSF Mean Scores*

	Sample	F	M	C	H	Not FRL	FRL
Control	.08	.05	.11	.09	.08	.06	.10
Experimental	.25	.28	.23	.44	.14	.11	.28

*Comparison of samples.* An independent *t*-test is appropriate for determining whether two samples come from populations with the same mean (Tanner, 2012). The independent *t*-test was performed to analyze the samples for the control and experimental groups, at 49 participants, .08 mean LSF, and 64 participants, .25 mean LSF respectively. Results indicated similarities between the two samples to suggest they were starting with statistically similar mean LSF scores, at  $t = -1.66$ , with a significance value of .10. Any positive, statistically significant difference for the experimental group at the conclusion of the intervention, therefore, could be suggested to be a result of the reception of the intervention, indicating a rejection of the null hypothesis.

*Comparison of subpopulations.* Similar to the above analysis of the entire samples, a comparison of the subpopulations was performed using independent *t*-tests. Table 14 delineates the outcomes of the *t*-tests.

Table 14

*Fall LSF Subpopulation T-Test Outcomes*

	Female	Male	Caucasian	Hispanic	Not FRL	FRL
Sig.	.07	.06	.06	.41	.51	.01

Because the significance is greater than .05 in each comparison, it can be determined that the populations are statistically similar, prior to the implementation of the intervention. Any

positive, statistically significant difference within any subpopulations of the experimental group when compared to the control group at the conclusion of the intervention, therefore, could be suggested to be a result of the reception of the intervention, indicating a rejection of the null hypothesis.

*Fall and Winter Letter-Sound Fluency.* Table 15 outlines the mean Fall and Winter Letter-Sound Fluency (LSF) scores for each group.

Table 15

*Fall and Winter LSF Mean Scores*

	Sample	F	M	C	H	Not FRL	FRL
Control Fall	.08	.05	.11	.09	.08	.06	.10
Control Winter	11.82	13.63	10.44	14.80	12.27	10.60	19.03
<b>Gains</b>	<b>+11.74</b>	<b>+13.58</b>	<b>+10.33</b>	<b>+14.71</b>	<b>+12.19</b>	<b>+10.54</b>	<b>+18.93</b>
Experimental Fall	.25	.28	.23	.44	.14	.11	.28
Experimental Winter	18.41	16.81	19.09	14.27	20.97	15.56	29.33
<b>Gains</b>	<b>+18.16</b>	<b>+16.53</b>	<b>+18.86</b>	<b>+13.83</b>	<b>+20.83</b>	<b>+15.45</b>	<b>+29.05</b>
Gains' Differences	6.42	2.95	8.53	-0.88	8.64	4.91	10.12

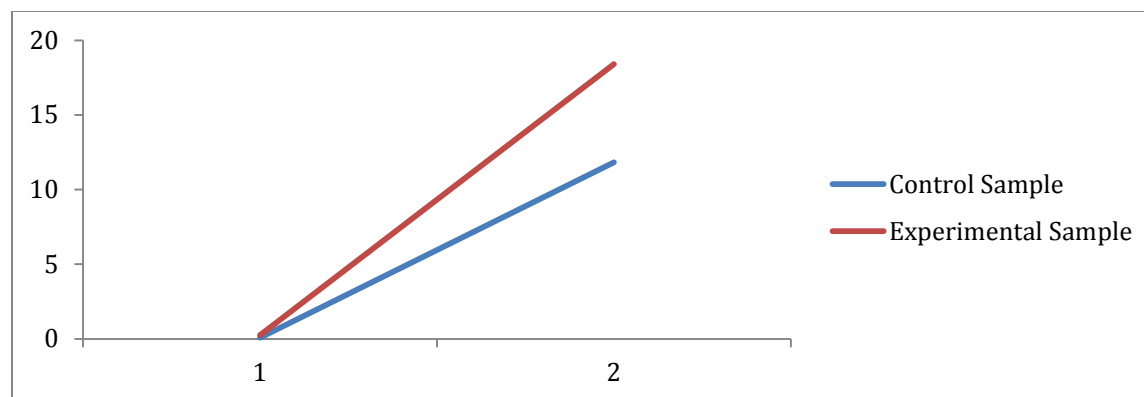
*Comparison of samples.* An independent *t*-test is appropriate for determining whether two samples come from populations with the same mean (Tanner, 2012). The independent *t*-test was performed to analyze the samples for the control and experimental groups, at 44 participants, 11.82 mean LSF, and 60 participants, 18.41 mean LSF respectively. At  $\alpha = .05$ , results indicated the *p*-value to be .02. This indicated a significance of difference, and a rejection of the null hypothesis. This would indicate the extended kindergarten opportunity offered to the

experimental group had an impact on its students' abilities to decode letter-sounds with fluency.

Figure 3 represents the differences in growth of letter-sound fluency between control and experimental groups from fall to winter.

Figure 3

*Letter-sound Fluency Growth – Fall to Winter*



*LSF effect size.* Cohen's  $d$  is an appropriate measurement for determining effect size when there exists a significant difference (Tanner, 2012). Use of the Cohen's  $d$  analysis tool indicated  $d = .48$ , indicating the intervention had a moderate effect on the students' fall scores. About 30% of the difference in the students' outcomes with respect to letter-sound fluency is likely to have been a result of the extended-day kindergarten intervention.

*Nationally normed outcomes comparison.* Comparisons with national norms support the generalizability of the results found relative to letter-sound fluency. Kindergarten students' rates of fluency are expected to grow by about 20 letter sounds per minute, during the time allotted for the intervention. While the control group nearly achieved that, the experimental group out-paced that expectation by nearly eight letter names. At 1.01 letter sounds per minute gained per week, the experimental group placed in the 62<sup>nd</sup> percentile for growth when compared to national norms set forth by the *AIMSweb ROI Growth Norms Table – Letter Name Fluency* (Pearson,

2012). Comparatively, at .65 letter sounds gained per minute, the control group's results placed them at about the 46th percentile.

*Comparison of subpopulations.* Similar to the above analysis of the entire samples, a comparison of the differences between subpopulations' fall and winter scores was performed using independent *t*-tests. Table 16 delineates the outcomes of the *t*-tests.

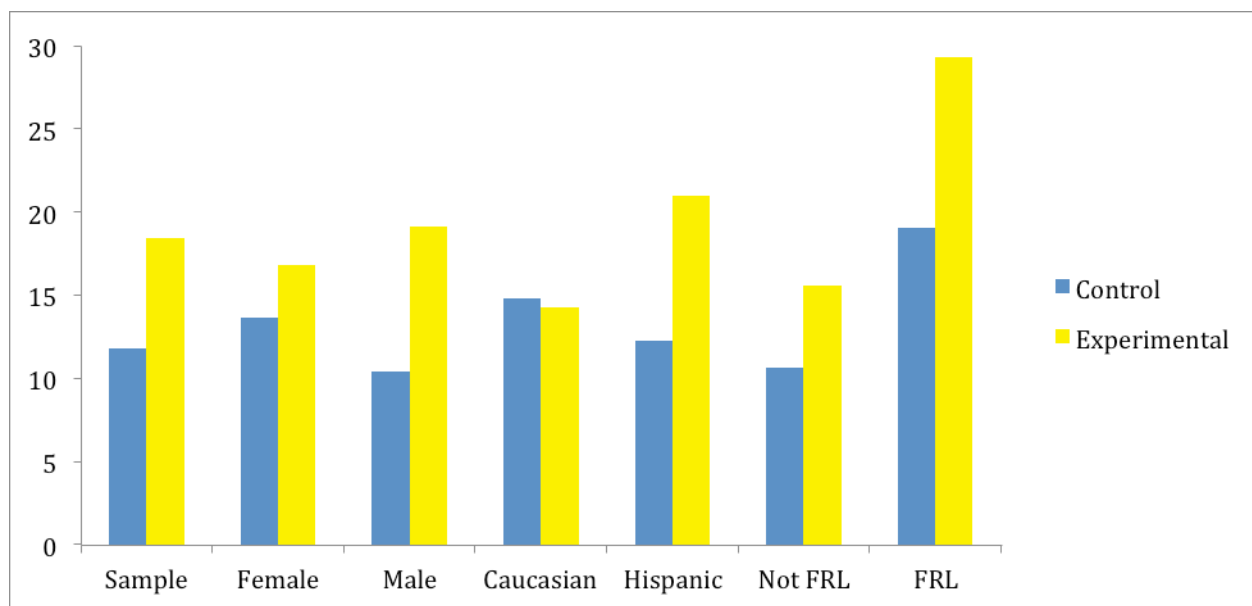
Table 16

*Winter LSF subpopulation t-test outcomes*

	Female	Male	Caucasian	Hispanic	Not FRL	FRL
Sig.	.29	.03	.26	.01	.28	.07

Because the significance was greater than .05 in comparisons of females, Caucasians, both those students qualifying and those not qualifying for free or reduced lunch, it can be suggested that the populations were statistically similar following administration of the Winter IRI. This indicated a failure to reject the null hypothesis for these groups. Male students and Hispanic students, however, were statistically dissimilar between control and experimental groups, indicating a rejection of the null hypothesis. The differences in these groups could be suggested to be strong and very strong, respectively. Figure 4 represents the differences in the sample and subpopulations' growths with respect to Letter-name Fluency from fall to winter.

Figure 4

*Sample and Subpopulations Letter-sound Fluency Growth – Fall to Winter*

*Subpopulations' effect sizes.* For those subpopulations whose difference was determined to be statistically significantly more positive in students participating in the extended-day kindergarten intervention, a measurement of effect size was completed. These groups included male students and Hispanic students. For male students,  $d = .61$  and  $r = .29$ , indicating a medium effect size attributable to the intervention. For Hispanic students,  $d = .64$  and  $r = .31$ , also indicating a medium effect size attributable to the intervention.

### **Measure Two: Parent Surveys**

Validated Likert surveys with qualitative elements included questions aimed at determining the parents' and instructors' sentiments regarding the strengths of their students relative to literacy. Eight questions were included in the survey, seven of which contained Likert rankings and opportunities for qualitative response. The eighth solely allowed for qualitative response. Ninety-five surveys were returned in the fall, 39 from the control group and 56 from the experimental group. Respondents decreased substantially in the winter, as only 24 from the

control group and 35 from the experimental group returned surveys. Solicited demographic information included only school district and ethnicity. Various qualitative responses were provided, at the discretion of the respondents, during both the fall and winter administration of surveys.

*Comparison of samples.* An independent  $t$ -test is appropriate for determining whether two samples come from populations with the same mean (Tanner, 2012). The independent  $t$ -test was performed to analyze the fall samples for the control and experimental groups. The Likert responses were scaled from one to five, least to greatest.



Table 17

*Fall Parent Survey T-Test Outcomes*

	Control Mean	Experimental Mean	t	Sig.
Q1 - My kindergarten student is a confident reader.	2.97	2.28	3.22	.002
Q2 - My kindergarten student enjoys reading.	3.82	3.36	2.44	.017
Q3 - The amount of time my kindergarten student spends reading at home is . . .	2.47	2.91	-2.12	.036
Q4 - I enjoy helping my kindergarten student learn to read.	4.31	4.33	-0.15	.883
Q5 – Purely qualitative response				
Q6 - My kindergarten student reads about as much as other students his/her age.	3.36	2.65	3.84	.000
Q7 - My kindergarten student can identify about as many letters as he/she should be able to at this point.	3.19	2.58	3.01	.003
Q8 - My kindergarten student is curious about reading.	4.16	3.65	2.64	.010

Fall results between parents in the control and experimental groups indicated few statistically similar responses to the questions. Because the significance is greater than .05, the comparisons for Q4 determined that the populations were statistically similar prior to the implementation of the intervention. Any positive, statistically significant difference in the experimental group when compared to the control group at the conclusion of the intervention, therefore, could be suggested to be a result of the reception of the intervention, indicating a

rejection of the null hypothesis. Because the significance is smaller than .05 for comparisons for Q1, Q2, Q3, Q6, Q7, and Q8, it can be suggested that the populations were not statistically similar prior to the implementation of the intervention.

Results from winter parent survey administration are represented in Table 18.

Table 18

*Winter Parent Survey T-Test Outcomes*

	Control Mean	Experimental Mean	<i>t</i>	Sig.
Q1 - My kindergarten student is a confident reader.	3.45	3.06	.61	.55
Q2 - My kindergarten student enjoys reading.	4.27	3.97	.26	.80
Q3 - The amount of time my kindergarten student spends reading at home is . . .	3.73	2.94	2.08	.04
Q4 - I enjoy helping my kindergarten student learn to read.	4.55	4.58	-.85	.40
Q5 – Purely qualitative response				
Q6 - My kindergarten student reads about as much as other students his/her age.	3.64	3.23	.82	.42
Q7 - My kindergarten student can identify about as many letters as he/she should be able to at this point.	3.55	3.68	-.91	.37
Q8 - My kindergarten student is curious about reading.	4.45	4.03	-.25	.80

Only question number three resulted in a statistically significant difference in response upon winter surveying, with parents whose students were enrolled in the control group indicating more reading at home.

*Comparison of subpopulations.* Similar to the above analysis of the entire samples, a comparison of responses from parents of differing ethnicities was performed using independent *t*-tests, delineated in Table 19.

Table 19

*Fall Parent Survey T-Test Outcomes – Caucasian Parents*

	Control Mean	Experimental Mean	t	Sig.
Q1 - My kindergarten student is a confident reader.	3.00	2.04	2.26	.03
Q2 - My kindergarten student enjoys reading.	4.13	3.61	2.03	.05
Q3 - The amount of time my kindergarten student spends reading at home is . . .	3.00	3.35	-.77	.45
Q4 - I enjoy helping my kindergarten student learn to read.	4.00	4.35	-1.1	.28
Q5 – Purely qualitative response	n/a	n/a	n/a	n/a
Q6 - My kindergarten student reads about as much as other students his/her age.	3.63	2.50	3.28	.00
Q7 - My kindergarten student can identify about as many letters as he/she should be able to at this point.	3.63	2.41	3.28	.00
Q8 - My kindergarten student is curious about reading.	4.38	3.57	3.13	.050

Results from Caucasian parents, taken from the winter administration of the parent survey are included in Table 20.

Table 20

*Winter Parent Survey T-Test Outcomes – Caucasian Parents*

	Control Mean	Experimental Mean	<i>t</i>	Sig.
Q1 - My kindergarten student is a confident reader.	3.17	2.97	.61	.55
Q2 - My kindergarten student enjoys reading.	3.92	3.85	.26	.80
Q3 - The amount of time my kindergarten student spends reading at home is . . .	3.42	2.86	2.08	.04
Q4 - I enjoy helping my kindergarten student learn to read.	4.17	4.44	-.97	.34
Q5 – Purely qualitative response	n/a	n/a	n/a	n/a
Q6 - My kindergarten student reads about as much as other students his/her age.	3.33	3.13	.82	.42
Q7 - My kindergarten student can identify about as many letters as he/she should be able to at this point.	3.25	3.57	-.91	.37
Q8 - My kindergarten student is curious about reading.	4.08	4.15	-.25	.80

Because the significance is greater than .05 in winter comparisons for Q1, Q2, Q4, Q6, Q7, and Q8, the control and experimental populations of Caucasian parents were statistically similar to each other following the completion of the intervention. Because the significance is smaller than .05 for comparisons for Q3, it can be determined that the populations were not

statistically similar following the completion of the intervention. Caucasian parents of students enrolled in the control group indicated their students spent more time reading at home than their experimental group counterparts. Further analysis resulted in  $d = .558$ , and  $r = .269$ , a moderate difference between the two.

Table 21

*Fall Parent Survey T-Test Outcomes – Hispanic Parents*

	Control Mean	Experimental Mean	<i>t</i>	Sig.
Q1 - My kindergarten student is a confident reader.	3.07	2.39	1.98	.05
Q2 - My kindergarten student enjoys reading.	3.86	3.35	1.47	.15
Q3 - The amount of time my kindergarten student spends reading at home is . . .	2.41	2.53	-1.25	.22
Q4 - I enjoy helping my kindergarten student learn to read.	4.56	4.13	.49	.63
Q5 – Purely qualitative response	n/a	n/a	n/a	n/a
Q6 - My kindergarten student reads about as much as other students his/her age.	3.41	2.57	2.30	.03
Q7 - My kindergarten student can identify about as many letters as he/she should be able to at this point.	3.18	2.65	1.28	.21
Q8 - My kindergarten student is curious about reading.	4.25	3.58	1.72	.09

Because the significance is greater than .05 in comparisons for Q2, Q3, Q4, Q7, and Q8, it can be determined that the Hispanic populations were statistically similar prior to the implementation of the intervention for those questions. Any positive, statistically significant

difference in the experimental group when compared to the control group at the conclusion of the intervention, therefore, could be suggested to have occurred partially as a result of the reception of the intervention, indicating a rejection of the null hypothesis. Because the significance is smaller than .05 for comparisons for Q6, it can be determined that the populations were not statistically similar prior to the implementation of the intervention.

Results from the survey of Hispanic parents following the completion of the intervention in the winter are included in Table 22.

Table 22

*Winter Parent Survey T-Test Outcomes – Hispanic Parents*

	Control Mean	Experimental Mean	<i>t</i>	Sig.
Q1 - My kindergarten student is a confident reader.	3.57	3.22	.86	.40
Q2 - My kindergarten student enjoys reading.	3.86	3.93	-.22	.83
Q3 - The amount of time my kindergarten student spends reading at home is . . .	2.86	2.85	.02	.99
Q4 - I enjoy helping my kindergarten student learn to read.	4.14	4.50	-.91	.38
Q5 – Purely qualitative response	n/a	n/a	n/a	n/a
Q6 - My kindergarten student reads about as much as other students his/her age.	3.43	3.15	.74	.47
Q7 - My kindergarten student can identify about as many letters as he/she should be able to at this point.	3.14	3.67	-1.30	.21
Q8 - My kindergarten student is curious about reading.	3.57	4.24	-2.15	.04

Because the significance is greater than .05 in winter comparisons for Q1, Q2, Q3, Q4, Q6, and Q7, the control and experimental populations of Hispanic parents were statistically similar following the completion of the intervention. Because the significance is smaller than .05 for comparisons for Q8, it can be determined that the populations were not statistically similar following the completion of the intervention. Hispanic parents of students enrolled in the control group felt their students were more curious about reading, at a significant rate when compared to

those in the experimental group. Further analysis of that final question's effect size revealed a  $d = 0.67$  and  $r = .32$ , a moderate difference.

*Pre and post intervention analysis.* While analyses of outcomes between control and experimental groups indicated a few differences, further analyses of survey data from before and after the intervention was also conducted.

Table 23 outlines the differences between parents in the control group who completed the survey in the fall and those who completed it in the winter.

Table 23

*Fall to Winter Parent Survey Outcomes – Control Group*

	Fall	Winter	Sig.
Q1 - My kindergarten student is a confident reader.	2.97	3.17	.54
Q2 - My kindergarten student enjoys reading.	3.82	3.92	.64
Q3 - The amount of time my kindergarten student spends reading at home is . . .	2.47	3.42	.00
Q4 - I enjoy helping my kindergarten student learn to read.	4.31	4.17	.63
Q5 – Purely qualitative response	n/a	n/a	n/a
Q6 - My kindergarten student reads about as much as other students his/her age.	3.36	3.33	.91
Q7 - My kindergarten student can identify about as many letters as he/she should be able to at this point.	3.19	3.25	.84
Q8 - My kindergarten student is curious about reading.	4.16	4.08	.77



The only significant difference, fall to winter, in the control group was found in Q3, regarding the amount of reading the students did at home. At means 2.47 for fall and 3.42 for winter, with standard deviations of .8 and 1.06 respectively, effect size calculations were performed. Outcomes indicated  $d = 1.0$  and  $r = .45$ , a strong indicator that the students' time in the kindergarten classes resulted in their parents' perception that they spent more time reading at home.

Table 24 outlines the differences between parents of students in the experimental group who completed the survey in the fall and those who completed it in the winter.

Table 24

*Fall to Winter Parent Survey Outcomes – Experimental Group*

	Fall	Winter	Sig.
Q1 - My kindergarten student is a confident reader.	2.28	2.97	.00
Q2 - My kindergarten student enjoys reading.	3.36	3.86	.01
Q3 - The amount of time my kindergarten student spends reading at home is . . .	2.91	2.86	.81
Q4 - I enjoy helping my kindergarten student learn to read.	4.33	4.44	.41
Q5 – Purely qualitative response	n/a	n/a	n/a
Q6 - My kindergarten student reads about as much as other students his/her age.	2.65	3.13	.02
Q7 - My kindergarten student can identify about as many letters as he/she should be able to at this point.	2.58	3.57	.00
Q8 - My kindergarten student is curious about reading.	3.65	4.15	.01

Significant differences, fall to winter, in the experimental group were found in Q1, Q2, Q6, Q7, and Q8. No significant differences were found in Q3 or Q4, when parental responses were compared before and after the intervention. Analyses of the effect size of the differences found in those responses were accomplished through use of Cohen's *d*, and outlined in Table 25.

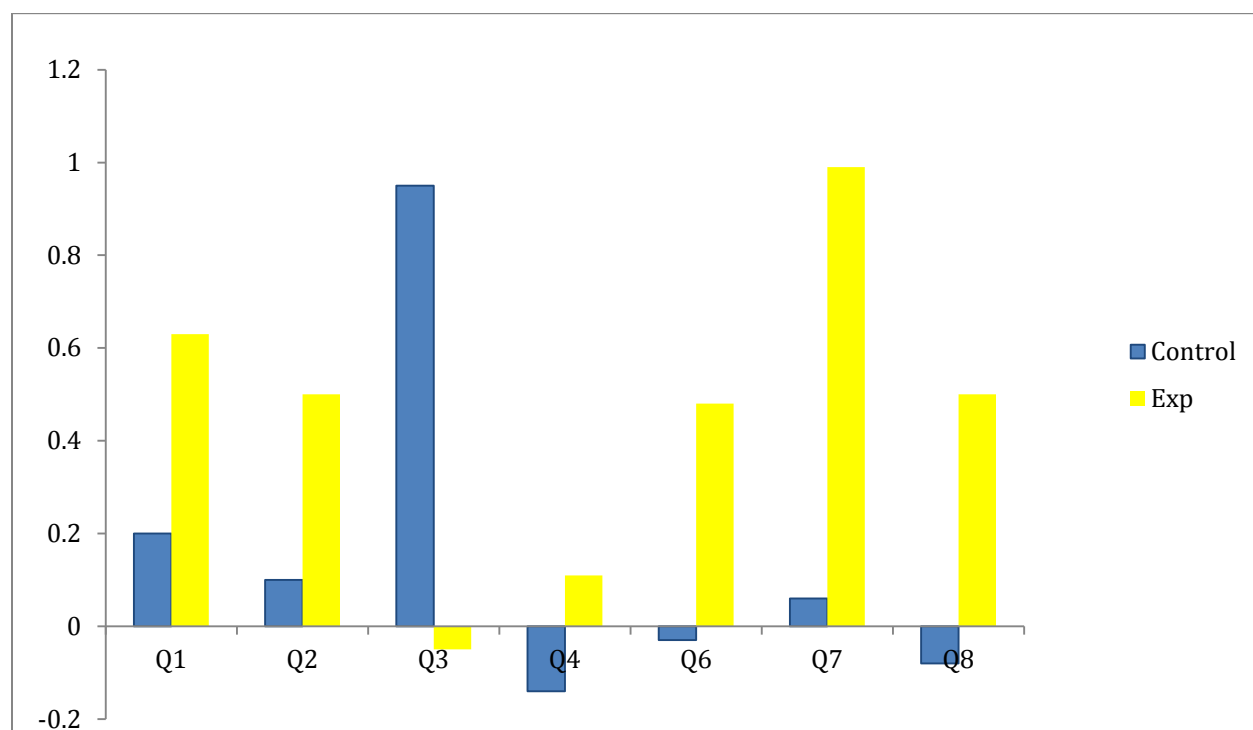
Table 25

*Fall to Winter Parent Survey Outcomes Effect Size – Experimental Group*

	Fall	Winter	<i>d</i>	<i>r</i>
Q1 - My kindergarten student is a confident reader.	2.28	2.97	.64	.31
Q2 - My kindergarten student enjoys reading.	3.36	3.86	.55	.27
Q6 - My kindergarten student reads about as much as other students his/her age.	2.65	3.13	.55	.26
Q7 - My kindergarten student can identify about as many letters as he/she should be able to at this point.	2.58	3.57	.94	.43
Q8 - My kindergarten student is curious about reading.	3.65	4.15	.55	.27

Analyses of these outcomes indicated a moderate effect size for Q1, Q2, Q6, and Q8. Q7 demonstrated a large effect size. This indicated the difference in parents' perceptions of their students' abilities to identify letters at grade level was strongly affected between the intervention, from fall to winter. Figure 5 represents the fall-to-winter differences in parents' responses on the Likert portion of the survey.

Figure 5

*Differences in Parents' Responses - Fall to Winter*

**Fall qualitative results.** Parents choosing to respond to opportunities to provide further feedback indicated confusion with respect to the requirements for kindergarten students' abilities to read, or demonstrate any of the prerequisite skills to reading fluency. Many also felt their students might be behind their peers, but did not indicate clear understanding for how to address the problems. Estimations of the amount of time parents spent reading with their students varied from a few minutes per day to over an hour per day. Response rates tended to be about a two-to-one ratio, parents of experimental group students responding with more regularity. Results are indicated in a ratio to include the total number of quantitative responses for that question. Q5 did not include a quantitative element and is therefore included without such a notation.

*My kindergarten student is a confident reader.* Ten experimental group parents responded, eight control group parents. Five experimental group and three control group parents

indicated positive feelings toward the confidence of their kindergartners regarding reading. Negative feelings of confidence included seven for the experimental group and five for the control group. Other responses indicated confusion regarding students' reading progression, and statements that the student simply cannot read yet.

*My kindergarten student enjoys reading.* Seventeen experimental group parents responded, five control group parents. Nearly all parents indicated their students enjoyed trying to read, reading, or being read to. Only two, one from each group, indicated neutral feelings that the student simply does not know how to read yet.

*The amount of time my kindergarten student spends reading at home is . . .* Thirteen experimental group parents responded, six control group parents. Likert responses provide the actual amounts, and the qualitative responses simply indicate students try to read, or clarify that parents read to their students at this point.

*I enjoy helping my kindergarten student learn to read.* Six experimental group parents responded, three control group parents. Three experimental group parents reiterated their enjoyment in helping their students learn to read, or reading to them. Two from the experimental group, however, indicated frustration, one from the control group. Statements included, "I can get frustrated showing all her letters" and "I am not always patient."

*I help my kindergarten student learn to read by . . .* This question did not include a Likert scale response option. Forty-three experimental group parents responded, 34 control group parents. Twenty-four of the 43 experimental group parents' responses indicated some element of reading to the student, while 20 of the 34 control group parents indicated the same. Twenty-one of the 43 experimental group parents, and 14 of the 34 control group parents, indicate specific

strategies employed to support their students' endeavors to learn to read, including sounding out of letters, use of flash cards, and emphasizing key words in passages.

*My kindergarten student reads about as much as other students his/her age.* Eleven experimental group parents responded, and two control group parents. Six and one, respectively, indicated confusion regarding how much other students read at this age. The rest simply expressed their belief that the student was behind where he/she should be.

*My kindergarten student can identify as many letters as he/she should be able to at this point.* Ten experimental group parents, and three control group parents responded. Four experimental group parents indicated their student was likely behind peers. One from each group indicated confusion regarding how much a student should be able to do at this point. Statements of confusion were, "Not sure where he should be" and "I don't know how many she should be able to." The rest of the responses, from both groups, did not respond to the question posed, including such statements as "He is starting to identify his letters" and "For some reason it is difficult for me to get him to practice."

*My kindergarten student is curious about reading.* Ten experimental group parents, and two control group parents responded. Six experimental group parents indicated their student was curious about reading, along with both control group parents. The other four experimental group parents indicated negative perceptions of their students' curiosity toward reading or practicing skills pertaining to reading.

*Major Themes.* Across the responses, parents ranged greatly in levels of confidence regarding the supporting of their students' reading development. While some shared strong, positive strategies, many did not know where to start or indicated frustration. The majority of

strategies included parents simply reading to students. Notably, many were not able to express what a beginning kindergarten student should know or be able to do at that moment.

**Winter qualitative results.** Similar to the quantitative response rates, qualitative responses were diminished at the winter administration. Only 13 of the 24 choosing to provide input from the control group included a narrative response to accompany the Likert scale. Thirty-one of the 35 from the experimental group provided such a response. Most questions drew only a few voluntary responses. Question five, the only purely open-ended question resulted in nine responses from parents whose students were enrolled in the control group, and 28 from the experimental group.

*My kindergarten student is a confident reader.* Six experimental group parents responded, four control group parents. One experimental group parent and one control group parent indicated positive feelings toward the confidence of their kindergartners regarding reading. Negative feelings of confidence included the other five for the experimental group and the other three for the control group.

*My kindergarten student enjoys reading.* Four experimental group parents responded, one control group parent. All five reported positive sentiments in their kindergarten students regarding reading.

*The amount of time my kindergarten student spends reading at home is . . .* Six experimental group parents responded, three control group parents. Likert responses provide the actual amounts, and the qualitative responses simply indicate students try to read, or clarify that parents read to their students at this point.

*I enjoy helping my kindergarten student learn to read.* Three experimental group parents responded, two control group parents. One experimental group parent reiterated enjoyment in helping their student learn to read. The rest of the respondents indicated frustration.

*I help my kindergarten student learn to read by . . .* This question did not include a Likert scale response option. Twenty-six experimental group parents responded, nine control group parents. Seventeen of the 26 experimental group parents' responses indicated some element of reading to the student, while seven of the nine control group parents indicated the same. Seven of the 26 experimental group parents, and two of the nine control group parents, indicate specific strategies employed to support their students' endeavors to learn to read, including sounding out of letters, use of flash cards, and emphasizing key words in passages.

*My kindergarten student reads about as much as other students his/her age.* Five experimental group parents responded, and two control group parents. All of them indicated confusion regarding how much other students read at this age.

*My kindergarten student can identify as many letters as he/she should be able to at this point.* Four experimental group parents, and one control group parent responded. Three of the four from the experimental group indicated their student was likely behind peers.

*My kindergarten student is curious about reading.* Two experimental group parents responded, and no control group parents responded. The two that did respond indicated the students liked to practice reading, and looked forward to it.

The lack of quantity of responses made the qualitative element to the winter survey difficult to generalize and find themes.



### Measure Three: Instructor Surveys

**Response rates.** Instructors in the experimental group responded in greater number than those in the control group, though the districts were similar in population. The intervention required twice as many instructors to implement, however, so this response was expected. Both the control and experimental groups, however, returned at high rates, 90% and 95% respectively. Table 26 outlines the responses for the control and experimental groups, including the number of years each instructor has taught.

Table 26

#### *Instructor Survey Responses*

	# of Responses	% of Population	1-3 Years Exp	4+ Years Exp
Control Group	9	90%	4	5
Experimental Group	15	95%	10	5

**Quantitative results.** Data gleaned from the instructor surveys, analyzed using the Mann Whitney *U* test for non-parametric data indicated no significant differences on any of the common questions between the control and experimental groups, at  $p=.05$ . The null hypothesis must not be rejected for all questions pertaining to instructors of kindergartners. According to Rosenthal (2001), failure to reject the null hypothesis indicates the evidence was not strong enough to reject the null hypothesis. Table 27 delineates the significance value for each of the questions common to the instructors.

Subgroups within the samples were not analyzed, as the Mann Whitney *U* test requires at least nine participants for each group. Only one of the four subgroups (experimental group instructors with one to three years' experience) resulted in responses in greater number than the nine required.

Table 27

*Instructor Survey Question Analysis*

	Mann Whitney <i>U</i>	Sig.
Kindergarten students receiving intervention opportunities become more confident readers than they would without the intervention.	72	.82
Kindergarten students participating in intervention enjoy reading by the end of their time in the program.	79	.34
Kindergarten students participating in intervention practice reading at home.	56.5	.52
I believe students participating in intervention receive reading support at home.	63	.82
Kindergarten students participating in intervention read at home about as much as their grade level peers.	62.5	.77

By design, only instructors of students involved in the intervention responded to the seventh and eighth questions, as these focused on the extended kindergarten that was not offered to the control group. Results from those questions indicate strong feelings of support, with means of 4.0 and 4.429 for questions seven and eight, respectively.

**Qualitative results.** Qualitative input was voluntary, gathered in two questions, only from instructors who worked with students in the experimental group. The questions provided opportunities for the instructors to provide deeper information regarding the activities in which students engaged during their extra time in kindergarten, and any further feedback they felt important for the researcher to know. Of the 15 respondents, eight chose to provide feedback for the former, and five for the latter. Seven of the eight responded to question number seven with

affirmation of increased participation. All five qualitative responses for question eight included strong support for the extended kindergarten intervention.

### **Summary**

This study's primary focus was to determine whether an extended day intervention of kindergarten, providing at-risk students a second opportunity to work through the reading curriculum, would positively affect their abilities to make catch-up growth toward proficiency. Participants, drawn from two neighboring school districts, were enrolled in kindergarten during the 2013-2014 school year. Results were triangulated through various analyses of elements found in three measures: the Idaho Reading Indicator, parent surveys, and instructor surveys. The Idaho Reading Indicator measured both letter-sound fluency and letter-name fluency, and was administered prior to, and following, the intervention. Parent surveys were administered before and after the intervention, and included Likert scale questions and opportunities to provide more feedback through open-ended questions. Instructor surveys, administered only following the intervention, also included Likert scale questions and opportunities to provide more feedback through open-ended questions. The research hypotheses suggested there would be a significant difference in students' scores following the intervention, and parents and instructors of students enrolled in the intervention would indicate stronger sentiments regarding students' literacy abilities. Of the three broad measures, including various subcategories of each, two resulted in significantly positive results for the experimental group. The third, instructor surveys, did not demonstrate significant differences between control and experimental groups.

Fall analyses of students' scores indicated the control and experimental group were statistically similar, prior to the intervention. Results from the Idaho Reading Indicator suggested students enrolled in the experimental group attained statistically significantly more positive

scores than those enrolled in the control group. These results include scores pertaining to letter-name fluency and letter-sound fluency.

Further analyses of the subgroups in the winter within the samples indicated significant outcomes for particular populations. In analyses of outcomes relative to letter-name fluency, male students, Hispanic students, and students qualifying for free or reduced lunch demonstrated significantly different positive outcomes when enrolled in the experimental group, at  $p=.01$ ,  $.01$ , and  $.02$  respectively. In analyses of outcomes relative to letter-sound fluency, male students and Hispanic students also demonstrated significantly different positive outcomes when enrolled in the experimental group, at  $p=.03$  and  $.01$  respectively.

In comparison of control and experimental groups as a whole, only question number three from the parent survey, “The amount of time my kindergarten student spends reading at home is . . .” resulted in statistically significantly different results between control and experimental groups. At  $p=.04$ , parents of students in the control group indicated significantly greater rates of reading at home.

Further analyses of subgroups resulted in similar outcomes. Caucasian parents, between control and experimental groups, resulted in statistically dissimilar outcomes for only the third question. Parents of Caucasian students enrolled in the control group indicated greater amounts of their students’ time were spent reading at home. Hispanic parents, however, indicated differences only in the eighth question, “My kindergarten student is curious about reading.” Parents of Hispanic students enrolled in the control group felt their students were more curious about reading than parents of Hispanic students enrolled in the experimental group.

Analyses of differences between administrations of parent surveys before and after the intervention were also considered. Post-intervention responses from parents of students enrolled

in the control group significantly differed from their pre-intervention responses only in the third question. Significantly positive differences were found in responses of parents from the experimental group in the first, second, sixth, seventh, and eighth questions.

Qualitative results were inconclusive, as open-ended response rates dropped sharply in the winter administration.

Surveys of instructors, administered only after the intervention was complete, indicated no significant quantitative differences in any of the questions pertaining to the efficacy of interventions offered in their schools. Qualitative responses, gathered only from instructors of students enrolled in the experimental group, indicated strong support for the extended kindergarten intervention opportunity for at-risk students.

## **Chapter V**

### **Discussion**

#### **Introduction**

This research focused on one primary curiosity: whether an extended day kindergarten with an element of double dosing of reading instruction for at-risk students would be worth the time and money a school district invested in it. Given the multitude of circumstances, the answer is not a simple one. Students' numerical scores tell a good amount of the story, while the perceptions of the people involved tell a little more. This chapter contains a summation and findings for the questions below.

1. What is the benefit of a second dose of literacy instruction on students likely to struggle during the kindergarten year?
2. How much of the hypothesized benefit is gained from enrollment in a second dose of literacy instruction?

There is a great deal of research regarding the provision of extra time for kindergarten students to attend. The bulk of it, however, does not focus on any particular model for delivery of the literacy instruction, resulting in confusing and often contradictory reports and understanding of the value of such an intervention. This research attempted to give one particular model an opportunity to demonstrate its value, when compared to a more traditional model.

#### **Findings**

Results of three measures, the Idaho Reading Indicator, a parent survey, and a teacher survey, provided several windows through which one could view the value of the control and experimental groups' learning models. Most results indicated the experimental group's district's approach was successful. Whether it was worth the amount of money that district invested is an

opinion best left to local school boards as they make decisions based on local priorities. Results contained herein certainly could positively influence that decision, however, as they primarily supported the hypotheses.

**Idaho reading indicator.** In the fall and winter of students' kindergarten year, the Idaho Reading Indicator focused on only letter-name fluency and letter-sound fluency. These are meant to be predictors of students' successes in developing automaticity, leading to comprehension, in reading. Measuring and analyzing these predictors was an important element of this research. Letter-sound fluency and letter-name fluency were measured at the beginning of the school year and again in the middle. Students enrolled in extended kindergarten demonstrated the same abilities to decode letters' names and sounds in the fall as their typically-enrolled peers in a neighboring district. Those same students, however, when measured in the middle of the school year, had gained an average of nearly nine letter-names and over six letter-sounds per minute more than their peers during that time.

In addition to the entire sample, six subgroups of students were examined for both letter-name fluency and letter-sound fluency. All but two of those twelve possibilities returned positive differences for the experimental group. Of those ten favorable results, five returned statistically satisfactory results for their subgroups. Male students, Hispanic students, and students who qualified for free or reduced lunch demonstrated significant differences in gains with respect to letter-name fluency. Male students and Hispanic students also demonstrated significant differences in decoding letter-sounds.

**Parent surveys.** Parents of students enrolled in the control and experimental groups were surveyed prior to the intervention and following the winter administration of the Idaho Reading Indicator. Responses were analyzed for the entire samples as well as by ethnicity of the students.

Eight questions, intended to determine parents' level of confidence in their students' literacy abilities, allowed for opportunities to respond in both Likert scale form and through open-ended questions. Results of surveys administered prior to the intervention indicated only a few of the questions were similar between parents of students enrolled in control and experimental groups. The differences, therefore, in fall and winter administrations, were analyzed as well for significance.

Analyses of differences in the entire samples' winter results indicated only one significant difference : the amount of time spent reading at home. Parents of students enrolled in the control group felt their students read significantly more at home than parents of students enrolled in the experimental group. When considering differences in ethnicities between the two groups, similar outcomes were found, as only one question resulted in significance of difference in each ethnic group. Responding to the third question, parents of Caucasian students in the experimental group felt their students read more at home than parents of students from the control group. Responding to the eighth question, parents of Hispanic students in the control group indicated their students were more curious about reading than their peers in the experimental group. These results did not support the research hypotheses. Their initial survey, however, had demonstrated only a few similarities. Further analysis of gain scores was necessary.

Analyses of differences between fall and winter administrations of the survey indicated the magnitude of differences in responses was greater in many cases for parents of students in the experimental group. Regarding the entire samples, only one question yielded statistically significantly different responses from fall to winter by parents of students in the control group: question three, "The amount of time my kindergarten students spends reading at home is . . ."



Parents of students enrolled in the experimental group, however, responded significantly more favorably in the winter administration of the survey on five of the seven Likert scale questions. This indicated their perception of their students' confidence as a reader, the amount their students enjoy reading, how much their students read compared to other students their age, how many letter-names their students should be able to recognize at that point, and their students' curiosity with respect to reading all were significantly higher than they were in the fall.

Qualitative results were supportive of the outcomes, although limited. Fall administration of the surveys indicated a great deal of parental confusion regarding what their students should know or be able to do at that stage of their development. Themes found in both groups' responses included a desire to help their students, but confusion and often frustration regarding how to go about providing that support. Winter administration of the surveys yielded very few qualitative responses. Parents of students enrolled in the experimental group tended to respond more favorably with respect to their students' progress in development of literacy than parents of students enrolled in the control group.

*Instructor surveys.* Instructor surveys were designed to ascertain the instructors' sentiments regarding the intervention opportunities offered at their schools. Responses from instructors, surveyed only following winter administration of the Idaho Reading Indicator, did not yield in any statistical differences. Instructors in both the control and experimental groups felt generally favorable toward the intervention opportunities they provide.

*Summary.* Of the three elements of data collection, two provided strong evidence the extended kindergarten intervention of a second dose of reading instruction offered to students in the experimental group was valuable. Students' scores for both letter-name and letter-sound fluency were positively affected, as were parents' sentiments toward several facets of their

students' abilities to demonstrate literacy skills. The intervention tended to have a moderate-to-strong impact on students' abilities to decode letter names and letter sounds with fluency. Only differences in teachers' responses to surveys regarding the value of the interventions offered in their schools were inconclusive, demonstrating no evident advantage.

### **Interpretation of Findings**

Findings included significant results in several categories to support the research hypotheses. These findings included differences in post-intervention Idaho Reading Indicator Results for the whole samples and some subcategories in letter-name fluency and letter-sound fluency, as well as significant gains in responses on surveys of parents when comparing fall and winter responses.

*Idaho reading indicator.* Results supported the research hypotheses that at-risk students would benefit from an extra opportunity to learn from an instructor. While this was statistically significant for the entire samples, it was particularly evident in specific subgroups, specifically male students, Hispanic students, and students qualifying for free or reduced lunch.

Providing at-risk students opportunities to work through the material a second time in rapid succession seems to be an obvious advantage. Boys who receive instruction a second time may be more likely to retain information, because they interact with the material again, picking up pieces they missed the first time. Likewise, Hispanic students who may be doing their best to focus on the teacher may miss important material the first time through. This research did not delineate students with language barriers from others, but intuitively the Hispanic students were more likely to have such barriers. Many Hispanic students enrolled in the two districts had only heard and spoken Spanish during their first five years of life. While this bilingualism is likely to eventually benefit them, missing crucial elements of instruction as their minds struggle to

assimilate it can impede learning. A second dose of instruction may have provided these students an opportunity to synthesize their understanding from the first time with the learning activities in which they were to engage the second time. Finally, students whose families qualified for free or reduced lunch may have had a difficult time with learning the material the first time for any number of reasons. Students with concerns regarding food or shelter, anxieties these five-year-olds have all too often, may have benefited from the second dose of instruction as they worked to attach meaning to the first dose.

For all students, the confidence to engage in the class routines and speak up when they knew the answer might have provided them opportunities to retain the material. Becoming familiar with the information on day one is likely to have provided them confidence on day two. More engaged students are likely to retain the material with greater success. It is certainly possible that the first day of instruction and second day of instruction did not provide equal opportunities, as the second day was more impactful than the first, given students' confidence and levels of attention to the teacher and learning activities.

*Parent surveys.* These outcomes were slightly more unpredictable than the Idaho Reading Indicator results. The pilot study provided an opportunity to see what might happen on a broader scale with IRI scores, which was generally supported in this research. Parental responses, however, provided a whole different angle on the perception of the students' kindergarten experiences. Considering the early administration of the survey revealed very little in common between parents of control and experimental group students, a second consideration of post-intervention outcomes relative to baseline data was the most compelling in support of the research hypotheses. While parents of students enrolled in the control group made only one significant jump in their perception of students' abilities, parents of students enrolled in the

experimental group made much greater gains in their perceptions of students' abilities after the intervention. It is certainly possible that there was a correlation between students' scores and their parents' perceptions of their abilities.

The only significant difference in outcomes on the parents' surveys was the amount of students' time spent reading at home. Parents of students enrolled in the control group responded with significantly greater reports of their students reading at home. This did not support the research hypotheses that the students with greater abilities and confidence would enjoy reading more and spend more time doing it while out of school. The only problem with this: experimental group students were not home as much because they were in school full time. Naturally, parents of students in the control group saw their students more. These parents were more likely to be home with their students to see them read.

*Instructor surveys.* Results from instructor surveys provided the least compelling support for the extended kindergarten opportunity as a worthwhile endeavor. Outcomes suggested instructors regarded the value of the intervention opportunities offered in their schools and districts about equally to each other. Results indicated both had a great deal of confidence in the programs they offer, but did not suggest instructors of students in the experimental group felt stronger about their offerings.

### **Context of Findings**

The literature review completed for this research addressed several aspects central to the extended day kindergarten intervention opportunities examined. Practices undertaken in the regular and extended kindergarten were supported in the research for literacy intervention (Fuchs & Fuchs, 2005; Fuchs et al., 2001). The curricula employed in delivery of instruction were supported with positive correlations between its use and student achievement (Arnold, 2009;

Borman et al., 2008; Grabe, 2010; Spencer, 2011; U.S. Department of Education, 2012). Extended kindergarten opportunities have proven valuable in certain contexts (Beiswinger, 2009; Chapman, 2009; Cooper et al., 2010; Elicker & Mathur, 1997; Florence School District, 1995; Hough & Bryde, 1996; Jackson, 2009; Li-Grining et al., 2008; Saam, 2005; Zakulak et al., 2009). Providing a second dose of literacy instruction has proven valuable as an intervention for at-risk students (Chidsey, 2010; U.S. Department of Education, 2010) and confidence has been linked to student learning in class (Cooper et al., 2010; West, 1995). The research, however, tended to focus on one meta-analysis of extended kindergarten opportunities.

*The Early Childhood Longitudinal Study: Kindergarten Class of 1998-99* incorporates results of thousands of kindergarten students' experiences in one place. These results have been analyzed by countless researchers, attempting to validate or refute the claim that extended kindergarten is valuable. Most research does not, however, consider the type of instruction offered. This research attempted to put some meaning to the learning activities with which students engaged in one particular model. It added to the body of research available regarding particular interventions offered in extended kindergarten. Results might deter educators from offering extended kindergarten opportunities without consideration of the learning activities to be undertaken in the classrooms.

**Generalizability of findings.** As mentioned in the section regarding limitations, this research was conducted in two school districts in southwestern Idaho. cursory analysis of results, however, indicated an ability to generalize the results to the population of the state. Participants from the experimental group outperformed the average kindergarten student by about nine letter names and four letter sounds. Participants from the control group nearly mirrored these state-wide results. Comparisons with national norms also support the

generalizability of these results. Kindergarten students' rates of fluency are expected to grow by about 20 letter names per minute. While the control group nearly achieved that, the experimental group out-paced that expectation by nearly eight letter names.

### **Implications of Findings**

Although multiple opportunities exist to extend this research and further develop understanding of its outcomes, one can draw several implications from it. As decisions are made to devote significant resources to intervention in the primary grades, this research serves as recognition that there are defensible intervention practices to predict future successes in literacy for at-risk students. Further, this research points to specific populations that can be targeted for improvement.

Perhaps more can be drawn from the perceptions of parents using their survey results. Parental perception of students' literacy skills significantly changed in the experimental group, and not significantly changed in the parents of students enrolled in the control group. At the mid-year point, a greater percentage of parents felt their experimental-group students were on track to fluency. While that is a nice side benefit of the intervention, in this age of educational funding, the passing of levies is extremely important to school districts. While the up-front cost of the intervention may appear daunting, the parental perception of instructional quality may bring a return on that investment through future support of the district's operational endeavors. Parents who feel their students are receiving a quality education may be more likely to advocate for, and financially support a district than if their perceptions were less favorable. The outcomes of the surveys were about the same, but parents of students enrolled in the experimental group began the school year with a less favorable impression of their students' abilities. That they ended up

the same as parents of students enrolled in the control group speaks volumes for the intervention offered in the experimental district.

### **Recommendations for Further Research**

While this research provides a glimpse into some possibilities for analysis of extended kindergarten intervention, deeper research into the outcomes would undoubtedly prove worthwhile. This research was limited in several ways that could be addressed with a larger scale population. Analyses included only two school districts. The curricula employed is widely available and implemented by countless other school districts. Identification of common factors such as curriculum, ethnicities, free or reduced lunch populations, and the intervention offered in extended kindergarten could broaden the scope of the research and provide more generalizable results. This would offer the researcher opportunities to examine a greater number of respondents to surveys, particularly from winter administration.

A deeper direction one could take with respect to research similar to this would be to examine the effects of such an intervention on students with limited English proficiency. While ethnicities are addressed in this research, one can only infer that these ethnicities represent students whose English proficiency is limited. Further research could delineate the outcomes within those ethnicities to determine whether the diverse ethnicities were cause for variation, or the English proficiency within them.

For the purposes of this research, only parents of students identified as at-risk were surveyed. There was a great deal of confusion, represented in their qualitative responses, regarding the levels of proficiencies one should expect of a five-year-old at the beginning of the first school year. Surveying all parents, preferably in a broader scope, to determine levels of understanding regarding what students should know and be able to do prior to kindergarten

might provide valuable insight into habits of parents of students from all ranges. Learning what strategies parents of students not identified for tier-two intervention employ, one might determine how to move forward in the education of parents regarding kindergarten readiness for literacy.

It is clear further exploration of opportunities to offer preschool might have significant benefits for students. There were a few students in both the control and experimental groups who had taken part in a preschool opportunity. Teachers reported these students were more prepared to benefit from kindergarten, having developed social skills necessary to take part in a classroom setting. Further research into the differences in these students' experiences, too few to be included as subpopulations for this research, might provide insight into the value of extended kindergarten. Recommendations contained here suggest the double-dosing to be a valuable intervention for kindergarten students at risk. Addressing the potentially at-risk students before reaching kindergarten, simply developing relational skills, might prove valuable in the students' readiness to benefit early in their educational careers.

Finally, a correlation study between parental perception and student standardized testing scores might provide valuable information. This research makes no attempt to suggest the two are related, but rather uses them in isolation to help quantify the efficacy of the intervention. Validating and piloting a survey tool that provides predictive validity for student success, one could find deeper meaning in analysis of parental surveys.

## **Conclusion**

Having concluded this research, and found valuable outcomes related to student achievement in the kindergarten year, it is clear that school districts can take worthwhile steps to help at-risk students succeed. Many prior researchers have found outcomes that support this



statement. Pockets of success exist all over the country for finding quality student achievement in kindergarten. It is primarily the longitudinal studies that make the case for extended kindergarten opportunities as insignificant. They find successes initially and then tail off as the students progress through their next couple of years. Certainly maintaining grade-level successes should be a primary goal. While extended kindergarten tends to help students end their first school year more academically in line with their peers, it should only be viewed as a beginning. Students in need of a second dose of literacy instruction are not “fixed” in one year, yet they move on to the first grade year and are expected to continue on par with their peers who did not need such intervention. If double-dosing was required for these students to reach end-of-year, grade-level proficiency during year one, it stands to reason that they will continue to need support as they progress through their next several years of instruction. If schools provide a second dose for only one year, find success in doing so, and then do not carry it out in subsequent years, they waste the effects of that effort. Providing the time necessary during the kindergarten year is simple, however. Most students attend only one half school day of kindergarten and spend the other half at another location. Finding opportunities to double dose literacy instruction during the first grade year and beyond can be more challenging. Schools are expected to open students’ eyes to many other disciplines during the elementary years. Should at-risk students have different opportunities than those not identified for improvement? Music and physical education begin to become more important, for good reason. Building and district leaders, ideally in concert with parents, must make a decision regarding how much of each discipline to practice, balancing core content with enhancement content to meet the needs of their students.

## References

- Abbas-Tashakkori, C.T. (2003). *Handbook of mixed methods in social and behavioral research*. Thousand Oaks, CA: Sage.
- Adams, M.J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.
- Annenberg Institute. (2013). *Reliability and validity*. Retrieved from [http://annenberginstitute.org/tools/using\\_data/surveys/tip3.php](http://annenberginstitute.org/tools/using_data/surveys/tip3.php)
- Archer, A.L., & Hughes, C.A. (2011). *Explicit instruction: Effective and efficient teaching*. New York, NY: Guilford.
- Arnold, T. (2009). *The effects of early reading interventions on student reading levels and achievement*. (Doctoral dissertation). Retrieved from ProQuest. (Order No. 3380429)
- Aud, S. (2001). *A closer look at Title I: Making education for the disadvantaged more student-centered*. Retrieved from <http://www.heritage.org/research/reports/2007/06/a-closer-look-at-title-i-making-education-for-the-disadvantaged-more-student-centered>
- Babbie, E.R. (1973). *Survey research methods*. Belmont, CA: Wadsworth.
- Babbie, E.R. (2012). *The practice of social research*. Belmont, CA: Wadsworth.
- Beiswinger, J. (2009). *Improving academic achievement at a greater rate with increased instructional time for students who qualify for free and reduced lunch* (Doctoral dissertation). Retrieved from ProQuest. (Order No. 3389389)
- Berliner, D. (1990). *What's all the fuss about instructional time? The nature of time in schools: Theoretical concepts, practitioner perspectives*. New York, NY: Instructors College Press.

- Bloom, B.S. (1956). *Taxonomy of educational objectives: The classification of educational goals*. New York, NY: Longmans.
- Borman, G., Downling, N.M., & Schneck, C. (2008). A multi-site cluster randomized field trial of open court reading. *Educational Evaluation and Policy Analysis*, 30(4), 389-407.
- Calderon, M., Slavin, R., & Sanchez, M. (2011). Effective instruction for English learners. *The Future of Children*, 21(1), 103-127. doi:10.1353/foc.2011.0007
- Campbell, F.A., & Ramey, C.T. (1995). Cognitive and school outcomes for high-risk African-American students at middle adolescence: Positive effects of early intervention. *American Educational Research Journal*, 32(4), 743-772.  
doi:10.3102/00028312032004743
- Carroll, J., & Spearritt, D. (1967). *A study of a "model of school learning."* Cambridge, MA: Center for Research and Development on Educational Differences.
- Chapman, C. (2009). *Early childhood longitudinal study: Kindergarten class of 1998-99. Methodology Report*. Retrieved from National Center for Education Statistics website: <http://nces.ed.gov/ecls/kindergarten.asp>
- Charlton, L. (2010). *From college to kindergarten: Instructor education background and student achievement*. (Doctoral dissertation). Retrieved from ProQuest. (Order No. 3428344)
- Connolly, F., & Olson, L. (2012). *Early elementary performance and attendance in Baltimore city schools' pre-kindergarten and kindergarten*. Retrieved from ERIC database. (Order No. 535768)
- Cooper, H., Allen, A.B., Patall, E.A., & Dent, A.L. (2010). Effects of full-day kindergarten on academic achievement and social development. *Review of Educational Research*, 80(1), 34-70. doi:10.3102/0034654309359185

- Cooper, H., Valentine, J.C., Charlton, K., & Melson, A. (2003). The effects of modified school calendars on student achievement and on school and community attitudes. *Review of Educational Research, 73*(1), 1-52. doi:10.3102/00346543073001001
- Creswell, J.W. (2012). *Educational Research: Planning, conducting, and evaluating quantitative and qualitative research*. Boston, MA: Pearson Education.
- Creswell, J.W., & Garrett, A.L. (2008). The “movement” of mixed methods research and the role of educators. *South African Journal of Education, 28*, 321-333.
- Creswell, J. W., Hanson, W.E., Plano Clark, V.L., & Morales, A. (2007). Qualitative research design: Selection and implementation. *The Counseling Psychologist, 35*(2), 236-264. doi:10.1177/0011000006287390
- Creswell, J.W., & Plano-Clark, V.L. (2011). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.
- Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297-333. doi:10.1007/BF02310555
- Danielson, C. (2007). *Enhancing professional practice: A framework for teaching*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Diehr, P., Martin, D.C., Koepsell, T., Cheadle, A., Psaty, B.M., & Wagner, E.H. (1998). Optimal survey design for community intervention evaluations: Cohort or cross sectional? *Journal of Clinical Epidemiology, 48*(12), 1461-1472. doi:10.1016/0895-4356(95)00055-0
- Dimiter, M.D., & Rumrill, P.D. (2003). Pre-test-post-test designs and measurement of change. *Speaking of Research, 20*, 159-165.
- Donaldson, R. (2011). *What classroom observations reveal about primary grade reading comprehension instruction within high poverty schools participating in the federal*

- reading first initiative* (Doctoral dissertation). Retrieved from ProQuest. (Order No. 3461336)
- Elicker, J., & Mathur, S. (1997). What do they do all day? Comprehensive evaluation of a full-day kindergarten. *Early Childhood Research Quarterly, 12*, 459-480. doi:10.1016/S0885-2006(97)90022-3
- Fielding, L., Kerr, N., & Rosier, P. (1998). *The 90% reading goal: 90% of our students will read at or above grade level by the end of third grade*. Kennewick, WA: New Foundation Press.
- Fisher, A., & Foreit, J. (2002). *Designing HIV/AIDS intervention studies: An operations research handbook*. Washington, D.C.: Population Council.
- Florence School District. (1995). Extended-day kindergarten: Florence school district one. *Extended Learning Time for Disadvantaged Students*.
- Fuchs, D., & Fuchs, L. (2005). Peer-assisted learning strategies: Promoting word recognition, fluency and reading comprehension in young children. *The Journal of Special Education, 39*(1), 34-44.
- Fuchs, D., Fuchs, L., Thompson, A., Al Otaiba, S., Yen, L., & Yang, N.J. (2001). Is reading important in reading-readiness programs? A randomized field trial with instructors as program implementers. *Journal of Education Psychology, 93*(2), 251-267.
- Gladwell, M. (2008). *Outliers: The story of success*. New York, NY: Little, Brown and Company.
- Gordon, C.A. (2014). A literacy lesson from China. *School Library Journal, 60*(1), 36.

- Goss, C., & Brown-Chidsey, R. (2012). Tier 2 reading interventions: Comparison of reading master and foundations double dose. *Preventing School Failure, 56*(1), 65-74.  
doi:10.1080/1045988X.2011.565385
- Grabe, W. (2010). Fluency in reading: Thirty-five years later. *Reading in a Foreign Language, 22*(1), 71-83.
- Gravetter, F.J., & Forzano, L.B. (2011). *Research methods for the behavioral sciences*. Belmont, CA: Wadsworth.
- Greene, J.C., Caracelli, V.J., & Graham, W.F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Education Evaluation and Policy Analysis, 11*(3). 255-274. doi:10.2307/1163620
- Guthrie, J.T., Wigfield, A., Metsala, J.L., & Cox, K.E. (2004). Motivational and cognitive predictors of text comprehension and reading amount. *Theoretical Models and Processes of Reading, 5*, 929-953. doi:10.1207/s1532799xssr0303\_3
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. New York, NY: Routledge.
- Hawe, P., Degeling, D., & Hall, J. (1990). *Evaluating health promotion: A health worker's guide*. Retrieved from <http://www.health.vic.gov.au/healthpromotion/steps/evaluation.htm>
- Haymon, G.D. (2009). *The impact of summer school on student academic achievement*. (Doctoral dissertation). Retrieved from ProQuest. (Order No. 3354741)
- Hendler, S., & Nakelsi, M. (2008). Extended day kindergarten: Supporting literacy and motor development through a teacher collaborative model. *Early Childhood Education Journal, 36*(1), 57-62. doi:10.1007/s10643-008-0241-8

- Hough, D., & Bryde, S. (1996). *The effects of full-day kindergarten on student achievement and affect*. Retrieved from <http://www.eric.ed.gov/PDFS/ED395691.pdf>.
- Idaho State Department of Education. (2010). *Idaho reading indicator*. Retrieved from [http://www.sde.idaho.gov/site/reading\\_indicator/](http://www.sde.idaho.gov/site/reading_indicator/)
- Idaho State Department of Education. (2013). *Statistics and finance*. Retrieved from <http://www.sde.idaho.gov/site/cnp/statisticsFinance/>
- Jackson, L. (2009). Observing children's stress behaviors in a kindergarten classroom. *Early Childhood Research & Practice, 11*(1).
- Jansen, H. (2010). The logic of qualitative survey research and its position in the field of social research methods. *Qualitative Social Research, 11*(2). Retrieved from <http://www.qualitative-research.net/index.php/fqs/article/view/1450/2946>
- Kropp, L.G. (2014). Vivacious vocabulary. *School library journal, 60*(1). Retrieved from <http://web.ebscohost.com>
- LaBerge, D., & Samuels, S.J. (1974). Toward a theory of automatic information processing in reading. *Cognitive Psychology, 6*, 292-323. doi:10.1016/0010-0285(74)90015-2
- Leak, J., & Farkas, G. (2011). *Effects of instructor credentials, coursework, and certification on student achievement in math and reading in kindergarten: An ECLS-K study*. Retrieved from <http://eric.ed.gov/PDFS/ED518799.pdf>
- Levin, H.M., & Hopfenberg, W.S. (1991). Don't remediate: Accelerate! *Principal, 70*(3), 11-13.
- Li-Grining, C., Maldonado-Carreno, C., & Votruba-Drzal, E. (2008). A developmental perspective on full versus part-day kindergarten and children's academic trajectories through fifth grade. *Child Development, 79*(4), 957-978.

- Loehnert, S. (2010). About statistical analysis of qualitative survey data. *International Journal of Quality, Statistics, and Reliability*, 2010(1). doi:10.1155/2010/849043
- Lynn, M.R. (1986). Determination and quantification of content validity. *Nursing Research*, 35, 382-385. doi:10.1097/00006199-198611000-00017
- Marshall, C., & Rossman, G.B. (2011). *Designing qualitative research: Fifth edition*. Los Angeles, CA: Sage.
- McMurrer, J. (2012). *Increased learning time under stimulus-funded school improvement grants: High hopes, varied implementation*. Washington, D.C.: Center for Education Policy.
- Miller, D., Malley, L., & Owen, E. (2009). *Comparative indicators of education in the United States and other G-8 countries: 2009*. Retrieved from <http://eric.ed.gov/PDFS/ED504634.pdf>
- National Association for the Education of Young Children. (2009). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8*. Retrieved from <http://www.naeyc.org/files/naeyc/file/positions/PSDAP.pdf>
- National Center on Time and Learning. (2012). *Expanded-time schools database*. Retrieved from <http://www.timeandlearning.org/dbl/>
- New York City Early Childhood Professional Development Institute. (2012). *Why is early childhood education important?* Retrieved from [http://www.earlychildhoodnyc.org/resources/aboutECE\\_whyImportant.cfm](http://www.earlychildhoodnyc.org/resources/aboutECE_whyImportant.cfm)
- Nunnally, J.C. (1978). *Psychometric theory* (2nd Ed.). New York, NY: McGraw-Hill.
- Oliver, C. (2007). *The relationship between length of kindergarten day and student literacy and math achievement*. (Doctoral dissertation). Retrieved from ProQuest. (Order No. 3354738)



- Pan, Y. (2011). *Long-term effects of higher-quality early childhood education for at-risk children on their later development and resilience* (Doctoral dissertation). Retrieved from ProQuest. (Order No. 3428392)
- Patton, B., Crosby, S., Houchins, D., & Jolivette, K. (2010). The comparative effect of fluency instruction with and without a comprehension strategy for elementary school students. *International Journal of Special Education*, 25(2), 100-112.
- Pearson. (2012). *AIMSweb ROI Growth Norms*. Retrieved from [http://www.aimsweb.com/wp-content/uploads/ROI\\_Norm\\_Tables1.pdf](http://www.aimsweb.com/wp-content/uploads/ROI_Norm_Tables1.pdf)
- Phillips, L., & Norris, S. (1990). *Effect of early literacy intervention on kindergarten achievement*. Champaign, IL: Center for the Study of Reading.
- Polit, D.F., Beck, C.T., & Hungler, B.P. (2001). *Essentials of nursing research: Methods, appraisal, and utilization*. Philadelphia, PA: Lippincott.
- Polit, D.F., & Beck, C.T. (2006). The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health*, 2, 489-497. doi:10.1002/nur.20147
- Protheroe, N. (2007). Alternatives to retention in grade. *Principal*, 86(3). 30-34. Retrieved from <http://www.naesp.org/resources/2/Principal/2007/J-Fp30.pdf>
- Rathbun, A. (2010). *Making the most of extra time: Relationships between full-day kindergarten instructional environments and reading achievement*. Retrieved from American Institutes for Research website: [http://www.air.org/files/AIRBriefkindergarten\\_reading.pdf](http://www.air.org/files/AIRBriefkindergarten_reading.pdf)
- Roderick, M., Engel, M., & Nagaoka, J. (2003). *Ending social promotion: Results from summer bridge*. Chicago, IL: Consortium on Chicago School Research.

- Rosenthal, J.A. (2001). *Statistics and data interpretation for the helping professions*. Belmont, CA: Wadsworth Learning.
- Saam, J. (2005). The effects of full-day versus half-day kindergarten on the achievement of students with low/moderate income status. *Journal of Research in Childhood Education*, 20(1), 27-35. doi:10.1080/02568540509594548
- Samuels, S.J., & Flor, R.F. (1997). The importance of automaticity for developing expertise in reading. *Reading & Writing Quarterly*, 13(2), 107-121. doi:10.1080/1057356970130202
- Science Research Associates. (2002). *Open court reading*. Chicago, IL: SRA-McGraw Hill.
- Science Research Associates. (2007). *Imagine it!* Chicago, IL: SRA-McGraw Hill.
- Slavin, R., Lake, C., Chambers, B., Cheung, A., & Davis, S. (2009). *Effective beginning reading program: A best-evidence synthesis*. Retrieved from <http://www.eric.ed.gov/PDFS/ED527638.pdf>
- Smith, A. (2011). Are year-round schools a viable option for improving student achievement, combating summer learning loss in disadvantaged youth, controlling expenses, and reducing instructor burnout? (Doctoral dissertation). Retrieved from <https://cdr.lib.unc.edu/>
- Spencer, T. (2011). Learning to read in the wake of reform: Young children's experiences with scientifically based curriculum. *Perspectives in Urban Education*, 8(2), 41-50.
- Stahl, S.A., & Murray, B.A. (1994). Defining phonological awareness and its relationship to early reading. *Journal of Educational Psychology*, 66(2), 221-234. doi:10.1037/0022-0663.86.2.221

- Stockard, J., & Engelmann, K. (2010). The development of early academic success: The impact of direct instruction's reading mastery. *Journal of Behavior Assessment and Intervention in Children, 1*(1), 2-24.
- Tanner, D. (2012). *Using statistics to make educational decisions*. Thousand Oaks, CA: Sage.
- Therrien, W. (2004). Fluency and comprehension gains as a result of repeated reading: A meta analysis. *Remedial and Special Education, 25*, 252-261.  
doi:10.1177/07419325040250040801
- Traxler, A.E. (1932). The correlation between reading rate and comprehension. *The Journal of Educational Research, 26*(2), 97-101.
- Trotter, R. (1986). The mystery of mastery. *Psychology Today, 20*(7), 32-38.
- U.S. Department of Education. (2010). *What works clearinghouse: Improving reading comprehension in kindergarten through 3rd grade*. Retrieved from <http://www.eric.ed.gov/PDFS/ED512029.pdf>
- U.S. Department of Education. (2011). *Effectiveness of a program to accelerate vocabulary development in kindergarten: A first grade follow-up report and exploratory analyses of kindergarten impacts*. Retrieved from <http://eric.ed.gov/PDFS/ED527097.pdf>
- U.S. Department of Education. (2012). *What works clearinghouse: Open court reading*. Retrieved from <http://www.eric.ed.gov/PDFS/ED534367.pdf>
- West, J. (1995). *Readiness for kindergarten: Parent and instructor beliefs*. Retrieved from National Center for Education Statistics website: <http://nces.ed.gov/pubs93/web/93257.asp>

- Wilson, J.J. (2000). The high/scope Perry Preschool project. Retrieved from Office of Juvenile Justice and Delinquency Prevention website:  
<https://www.ncjrs.gov/pdffiles1/ojjdp/181725.pdf>
- Workman, E. (2013). *Inequalities at the starting line: State kindergarten policies*. Retrieved from Education Commission of the States website:  
<http://www.ecs.org/clearinghouse/01/06/78/10678.pdf>
- Wuensch, K.L. (2003). *Quasi-experimental design*. Retrieved from <http://core.ecu.edu/psyc/wuenschk/docs2210/Research-8-QuasiExpDesign.doc>
- Wurtz, K. (2009). *Using mixed methods to analyze surveys*. Retrieved from [http://www.chaffey.edu/research/IR\\_PDF\\_Files/Presentations/Other/0809/MixedMethods.pdf](http://www.chaffey.edu/research/IR_PDF_Files/Presentations/Other/0809/MixedMethods.pdf)
- Yoshikawa, H. (1995). Long-term effects of early childhood programs on social outcomes and delinquency. *Future of Children* 5(3). 51-75. doi:10.2307/1602367
- Zakulak, B., Straw, S., & Smith, K. (2009). *The efficacy of an all-day, every-day kindergarten program: A seven year cumulative report for the St. James-Assiniboia School Division*. Retrieved from Madison Public Schools website: [http://www.madison.k12.ct.us/uploaded/docs/full\\_day\\_K/Efficacy\\_of\\_An\\_All\\_Day\\_Kindergarten\\_Program.pdf](http://www.madison.k12.ct.us/uploaded/docs/full_day_K/Efficacy_of_An_All_Day_Kindergarten_Program.pdf)
- Zelenka, V. (2010). *A case study of literacy instruction delivered to kindergarten struggling readers within the response to intervention model in three classroom settings* (Doctoral dissertation). Retrieved from K-REx. (Order No. 3885)

## Appendix A

### Letter of Support – Experimental Population School District

April 25, 2013

Dear Mr. Raney,

The purpose of this letter is to show support of your research work; “Impact on Reading Fluency of At-Risk Kindergartners Provided a Double Dose of Literacy Instruction”. We are happy to partner with you in your project and are anxious to see the results of this study.

Our administrative team has agreed to the terms you submitted which include; our district providing IRI data for our kindergarten students and you surveying parents and or instructors regarding student confidence.

Please be in touch throughout this process and let us know if there is anything else we can provide you in order for you to complete this study.

I look forward to seeing the results of your work.

Sincerely,

REMOVED FOR ANONYMITY – On file with researcher

**Appendix B****Letter of Support – Control Population School District**

April 23, 2013

Dear Mr. Raney,

The purpose of this letter is to show support of your research work; “Impact on Reading Fluency of At-Risk Kindergartners Provided a Double Dose of Literacy Instruction”. We are happy to partner with you in your project and are anxious to see the results of this study.

Our administrative team has agreed to the terms you submitted which include; our district providing IRI data for our kindergarten students and you surveying parents and or instructors regarding student confidence.

Please be in touch throughout this process and let us know if there is anything else we can provide you in order for you to complete this study.

I look forward to seeing the results of your work.

Sincerely,

REMOVED FOR ANONYMITY – On file with researcher

## Appendix C

### Survey of Parents

Parents, completion of this survey indicates consent for participation in research conducted by Mr. Taylor Raney, doctoral student at Northwest Nazarene University. Responses are anonymous as the only identifiable demographic information is ethnicity and school district information. Participation in this survey is voluntary and of great help in completion of the research. If at any time you are uncomfortable with a question or prefer not to answer, you may simply skip it. For any questions, please call the researcher, Taylor Raney, at 455-3313 or the Spanish-speaking research confederate at XXX-XXXX. We may also be reached via email at [tcraney@nnu.edu](mailto:tcraney@nnu.edu) or [josh.cline.confederate@hotmail.com](mailto:josh.cline.confederate@hotmail.com).

Please circle the proper response for each question below.

My student is **Hispanic**      **White**      **Other**

My student is enrolled in the **Control School District**      **Experimental School District**

Please respond to the questions below by circling a response below each question. There is space provided for further feedback regarding each question.

1 – My kindergarten student is a confident reader.

**Strongly Disagree**      **Disagree**      **Neutral**      **Agree**      **Strongly Agree**

Further feedback:

2 – My kindergarten student enjoys reading.

**Strongly Disagree**      **Disagree**      **Neutral**      **Agree**      **Strongly Agree**

Further feedback:

3 – The amount of time my kindergartner spends weekly reading at home is . . .

**None**      **a few minutes**      **about an hour**      **more than an hour**      **many hours**

Further feedback:

4 – I enjoy helping my kindergarten student learn to read.

**Strongly Disagree**      **Disagree**      **Neutral**      **Agree**      **Strongly Agree**

Further feedback:

5 – SHORT ANSWER - I help my kindergarten student learn to read by . . .

6 – My kindergarten student reads about as much as other students his/her age.

**Strongly Disagree**      **Disagree**      **Neutral**      **Agree**      **Strongly Agree**

Further feedback:

7 – My kindergarten student can identify as many letter-sounds as he/she should be able to at this point.

**Strongly Disagree**      **Disagree**      **Neutral**      **Agree**      **Strongly Agree**

Further feedback:

8 – My kindergarten student is curious about reading.

**Strongly Disagree**      **Disagree**      **Neutral**      **Agree**      **Strongly Agree**

Further feedback:



## Appendix D

### Survey of Instructors

Instructors, completion of this survey indicates consent for participation in research conducted by Mr. Taylor Raney, doctoral student at Northwest Nazarene University. Responses are anonymous as the only identifiable demographic information is ethnicity and school district information. Participation in this survey is voluntary and of great help in completion of the research. If at any time you are uncomfortable with a question or prefer not to answer, you may simply skip it. For any questions, please call the researcher, Taylor Raney, at 455-3313 or the Spanish-speaking research confederate at XXX-XXXX. We may also be reached via email at tcraney@nnu.edu or josh.cline.confederate@hotmail.com.

1 – Students receiving extended kindergarten opportunities become more confident readers than they would have without the intervention.

**Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree**

Please describe why you circled your above answer, citing evidence when possible:

2 – Students participating in the extended kindergarten intervention enjoy reading by the end of their time in the program.

**Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree**

Please describe why you circled your above answer, citing evidence when possible:

3 – Students participating in the extended kindergarten intervention practice reading at home.

**Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree**

Please describe why you circled your above answer, citing evidence when possible:

4 – I believe students participating in the extended kindergarten intervention receive reading support at home.

**Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree**

Please describe why you circled your above answer, citing evidence when possible:

5 – Students participating in the extended kindergarten intervention begin to develop a love for reading.

**Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree**

Please describe why you circled your above answer, citing evidence when possible:

6 – Students participating in the extended kindergarten intervention read at home about as much as grade level peers.

**Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree**

Please describe why you circled your above answer, citing evidence when possible:

7 – Students participating in the extended kindergarten intervention participate in class more during the second dose of literacy instruction.

**Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree**

Please describe why you circled your above answer, citing evidence when possible:

8 – The second dose of literacy instruction is a valuable intervention provided at this school.

**Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree**

Please describe why you circled your above answer, citing evidence when possible:

9 – Please describe the nature of the activities in which students involved in all-day, every-day kindergarten take part. Attach additional sheet if necessary.

## **Appendix E**

### **Informed Consent Form**

#### **A. PURPOSE AND BACKGROUND**

Taylor Raney, Ed.S., a doctoral student in Educational Leadership at Northwest Nazarene University is conducting a research study related to student literacy in kindergarten. With this study, we hope to determine how extra time devoted to literacy development impacts students' abilities to read with fluency.

You are being asked to participate in this study because you are the parent of a current kindergarten student.

#### **B. PROCEDURES**

If you agree to participate in the study, the following will occur:

1. You will be asked to sign this Informed Consent Form, allowing your student's anonymous data to be used in the study.
2. Your student's educational progress will be examined for the course of one semester during the 2013 2014 school year.
3. You will be asked to complete a survey at the beginning and end of the fall semester to help determine your student's confidence level and progress during his/her first semester in kindergarten.

#### **C. RISKS/DISCOMFORTS**

1. Confidentiality: Participation in research may involve a loss of privacy; however, your records will be handled as confidentially as possible. No individual identities will be used in any reports or publications that may result from this study. All data will be encrypted by the students' school administration and identities will only be known to that administration. The primary researcher will not be able to link student data or feedback from surveys to any person or family but will be able to link survey data to anonymous IRI score data. In compliance with the Federalwide Assurance Code, data from this study will be kept for three years, after which all data from the study will be destroyed (45CFR 46.117).
2. Confederate: Spanish communication will occur through use of a translator. Mr. Josh Cline will be available for any student or parent needing to communicate with the primary researcher in Spanish or for clarification of any information provided on forms. Data will also be anonymous to Mr. Cline as the primary researcher's confederate.

#### **D. BENEFITS**

The possible benefits of this study include increased ability to identify letter-names/sounds and increased confidence in doing so.

**E. PAYMENTS**

There are no payments for participating in this study.

**F. QUESTIONS**

If you have questions or concerns about participation in this study, you should first talk with the researcher. Taylor Raney can be contacted via email at [tcraney@nnu.edu](mailto:tcraney@nnu.edu), via telephone at (208) 455-3313 or by writing: 400 E. Linden Street, Control, ID, 83605. If for some reason you do not wish to do this, you may contact Dr. Paula Kellerer, Doctoral Committee Chair at Northwest Nazarene University, via email at [pkellerer@nnu.edu](mailto:pkellerer@nnu.edu) or by writing: 623 University Drive, Nampa, Idaho, 83686.

**G. CONSENT**

You will be given a copy of this form to keep.

**PARTICIPATION IN RESEARCH IS VOLUNTARY.** You are free to decline to be in this study, or to withdraw from it at any point. Your decision as to whether or not you participate in this study will have no influence on your present or future status in your school.

*I give my consent for my student's data to be used in this study:*

---

Signature of Study Participant's Legal Guardian

---

Date

## Appendix F

### Idaho Reading Indicator (IRI): Parent Informational Brochure

#### Suggested Parental Support Activities

Encourage letter recognition at every opportunity - During stories or while driving.

Work with your child to break words into individual sounds (/c/.../a/.../k/).

Encourage your child to write letters and words and read what he/she has written.

Playing with words - Rhyming games, singing songs, and orally breaking words into syllables.

Read and have conversations about books with your child daily for at least **20 minutes**. Have your child read to you once he/she has become an independent reader.

Practice retelling stories with your child. Make-up stories to develop your child's vocabulary, creativity, comprehension, and language development.

Have a variety of books available for your child or visit your local library.

Model good reading habits.

RD GRADE

Reading CBM

Reading CBM

**For more information, please contact:**

Stephanie Lee  
IRI Program Specialist  
(208) 332-6903  
Slee@sde.idaho.gov



IDAHO READING INDICATOR (IRI)  
PARENT INFORMATION

## Dear Parents:

The Idaho Reading Initiative, enacted by the Idaho Legislature, was designed to ensure that all children in the State of Idaho will master the skills they need to become successful readers. It is our goal at the State Department of Education to work with you, your child's school, teacher, and school administrators to promote his/her reading success!

Your child's teacher and school are the best resources for information relating to your child's academic success.

### For questions or assistance regarding

the IRI, contact:  
Stephanie Lee  
IRI Program Specialist  
SLee@side.idaho.gov

## Idaho Reading Indicator

### What is it?

The IRI is a screening assessment given to Idaho students in grades K-3, at least twice a year, fall and spring.

The most critical skills used to predict future reading success are tested, by trained proctors, at each grade level.

### What does it mean?

The IRI is a screening tool used to identify students' basic reading skills. It provides an early warning identifying students who might be "at risk" for reading difficulty.

## Scoring

**Benchmark or a 2:** reading skills at or above grade level

**Strategic or a 2i:** reading skills near grade level

**Intensive or a 1:** reading skills below grade level

## Yearly Subtests

### Kindergarten

FALL IRI SCORE BASED ON:

**Letter Naming Fluency (LNF)** - Naming the correct case letter

**Letter Sound Fluency (LSF)** - Sounding out the correct letter

**LNF Skill Level (Goal) = 11**

(LSF assessed as a baseline measure)

SPRING IRI SCORE BASED ON:

**Letter Naming Fluency (LNF)** - Naming the correct upper and lower case letter

**Letter Sound Fluency (LSF)** - Sounding out the correct upper or lower case letter

**LSF Skill Level (Goal) = 30**

(LNF assessed as a baseline measure)

### First Grade

FALL IRI SCORE BASED ON:

**Letter Sound Fluency (LSF)** - Sounding out the correct upper or lower case letter

**Reading Curriculum-Based Measures (RCBM)** Students read three similar passages,

which are the same passages for each assessment. The median (middle) score from

the three passages is the score that is recorded.

**LSF Skill Level (Goal) = 31**

(RCBM assessed as a baseline measure)

SPRING IRI SCORE BASED ON:

**Letter Sound Fluency (LSF)** - Is also given in the spring as another measurement of student growth

**Reading Curriculum-Based Measures (RCBM)** - Is the indicator used to determine the spring score

**RCBM Skill Level (Goal) = 53**

(LSF assessed as a baseline measure)

### Second Grade

FALL AND SPRING IRI SCORE BASED ON:

**Reading Curriculum-Based Measures (RCBM)** Students read three similar passages,

which are the same passages for each assessment. The median (middle) score from the three passages is the score that is recorded.

**Fall RCBM Skill Level (Goal) = 54**

**Spring RCBM Skill Level (Goal) = 92**

### Third Grade

FALL AND SPRING IRI SCORE BASED ON:

**Reading Curriculum-Based Measures (RCBM)** Students read three similar passages,

which are the same passages for each assessment. The median (middle) score from the three passages is the score that is recorded.

**Fall RCBM Skill Level (Goal) = 77**

**Spring RCBM Skill Level (Goal) = 110**

## Appendix G

### Idaho Reading Indicator: Teacher Informational Brochure

#### Idaho Statute

Idaho Statute 33-1614 requires K-3 students in Idaho to be assessed as they develop critical reading skills. The purpose of the assessment, the Idaho Reading Indicator (IRI), is to indicate which children are most likely going to be at-risk of failure with skills that are prerequisite for being successful readers throughout life. As is written in the statute, "the state K-3 assessment test results shall be reviewed by school personnel for the purpose of providing necessary interventions to sustain or improve the students' reading skills."

#### Parental Support Activities

Encourage letter recognition at every opportunity - During stories or while driving.

Work with your child to break words into individual sounds (/c.../a.../t/).

Encourage your child to write letters and words and read what he/she has written.

Playing with words - Rhyming games, singing songs, and orally breaking words into syllables.

Read and have conversations about books with your child daily for at least 20 minutes.

Have your child read to you once he/she has become an independent reader.

Practice retelling stories with your child.

Makeup stories to develop your child's vocabulary, creativity, comprehension, and language development.

Have a variety of books available for your child or visit your local library.

Model good reading habits.

*Optimism is the faith that leads to achievement, nothing can be done without hope and confidence.*  
~Helen Keller~

For more information you can contact  
**Stephanie Lee at 208-332-6903 or**  
[slee@sde.idaho.gov](mailto:slee@sde.idaho.gov).

IRI Web Application, Forms, Trainings, and IRI Results are on the IRI webpage:  
[http://www.sde.idaho.gov/site/reading\\_indicator/](http://www.sde.idaho.gov/site/reading_indicator/)

650 State Street  
Boise, ID 83720-0027  
208-332-6800



IRI Teacher Brochure

*Not too fast, not too slow,  
Make few mistakes as you go,  
Read as if talking to a friend -  
It is what you know in the end!*

~Cristianne Lane



Idaho State Department of Education



You, the teacher, and the school are the best recourses for information relating to a student's academic success.

## Idaho Reading Indicator

### What is it?

The IRI is a screening assessment given to Idaho students in grades K-3, at least twice a year, fall and spring.

The most critical skills used to predict future reading success are tested, by trained proctors, at each grade level.

### What does it mean?

The IRI is a screening tool used to identify students' basic reading skills. It provides an early warning identifying students who might be "at risk" for reading difficulty.

# Scoring and Subtest

## Kindergarten >>>

FALL IRI SCORE BASED ON:

**Letter Naming Fluency (LNF)**  
- Naming the correct case letter

**Letter Sound Fluency (LSF)**  
- Sounding out the correct letter

**LNF Skill Level (Goal) = 11**  
(LSF assessed as a baseline measure)

**Letter Naming Fluency (LNF)**  
- Naming the correct upper and lower case letter

**Letter Sound Fluency (LSF)**  
- Sounding out the correct upper or lower case letter

**LSF Skill Level (Goal) = 30**  
(LNF assessed as a baseline measure)

## 1st Grade >>>

FALL IRI SCORE BASED ON:

**Letter Sound Fluency (LSF)**  
- Sounding out the correct letter

**Reading Curriculum Based Measures (RCBM)** - Students read three similar passages,

which are the same passages for each assessment. The median (middle) score from the three passages is the score that is recorded.

**LSF Skill Level (Goal) = 31**  
(RCBM assessed as a baseline measure)

**Letter Sound Fluency (LNF)**  
- Sounding out the correct letter

**RCBM Skill Level (Goal) = 54**  
**Spring RCBM Skill Level (Goal) = 92**

## 3rd Grade >>>

FALL & SPRING IRI SCORE BASED ON:

**Reading Curriculum-Based Measures (RCBM)**

Students read three similar passages, which are the same passages for each assessment. The median (middle) score from the three passages is the score that is recorded.

**Fall RCBM Skill Level (Goal) = 77**  
**Spring RCBM Skill Level (Goal) = 110**

	Kindergarten		1 <sup>st</sup> Grade		2 <sup>nd</sup> Grade		3 <sup>rd</sup> Grade	
	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
<b>LNF</b> <i>Predictor</i>	0-2	0-17	0-19	0-27	0-26	0-67	0-48	0-81
<b>LSF</b> <i>Predictor</i>	3-10	18-29	20-30	28-52	68-91	49-76	82-109	2
<b>LSF</b> <i>Baseline</i>	1	1	1	1	1	1	1	1
<b>RCBM</b> <i>Baseline</i>	1-1	31-42	2	2	2	2	2	2
<b>RCBM</b> <i>Predictor</i>	2	3	3	3	3	3	3	3
<b>RCBM</b> <i>Predictor</i>	2	43	3	3	3	3	3	3

## Word Definition >>>

**Indicator:** A gauge or predictor of reading ability or future reading ability.

**Benchmark:** An assessment with an expected level of proficiency taken three times a year - the IRI. Also referred to as an expected level of achievement that means a child is proficient. "The tested at benchmark, or at grade level."

**Progress monitoring:** The same type of assessment as the benchmark. It is given by a teacher or paraprofessional in between benchmark periods to track a child's growth in reading skills.

All subtests (predictor and baseline measures) are uploaded in through the ISEE Portal

Writer Testing Dates: Discontinued (The Idaho State Department of Education recommends the Writer Benchmark Assessment be completed by the classroom teacher or school personnel trained in giving the assessment, using a grade level benchmark assessment.)